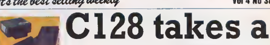


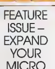
19-25 September 1985

It's the best selling weekly

Vol 4 No 38



C128 takes a nose-drive!



COMMODORE has delayed the introduction of its new C128 micro so that it may be offered with a new low-cost disc drive unit.

The C128 was originally scheduled to be in the shops last week, but has now been put back until the end of the month.

The new disc drive – the 1570 – was ordered by Commodore to replace the more expensive 1571 unit designed for the C128 in the US, apparently after the announcement by Amstrad of its competitively priced 6128 and 8256 machines

The 1570, identical to the 1571 unit except that it uses a cheaper single- rather than double-sided disc mechanism, will retail for £199

This means that the C128 machine plus disc drive combination will now sell for £468 This price is still over £70 more than the Amstrad 6128's price which also includes a colour monitor.

continued on page 4 ▶

New QL may join Spectrum 128K?

NEWS that Digital Research and Sinclair are once again involved in discussions concerning DR's GEM operations system has further fuelled speculation that Sinclair may be planning soon to launch a successor to its present QL model – a rival for Atari's new advanced 68000-based ST micro

Sinclair is also now expected to launch its long awaited sub-£200 128K version of the Spectrum in October.

Digital Research's Frank Iveson confirmed the talks

continued on page 4 ▶

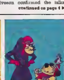
Cartoon capers spring to life

CARTOON characters have caught the attention of software companies this autumn, as both Elite Systems and Melbourne House announce games based on animated heros

Scooby Doo and *Wacky Races* have both been snapped up by Elite In *Scooby Doo*, the player takes the part of Shaggy who must explore McUrloch Castle with Scooby after he falls through a mysterious trapdoor The rest of the investigative gang,

continued on page 4 ▶

Good evening folks!



Cartoon heroes (left to right) *Asterix, Scooby Doo* and *Wacky Races*

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Vol 4 No 38

EDITORIAL

Despite Sinclair's dismal showing at the *Personal Computer World* Show – where it was overshadowed by born-again Atari Amstrad and Commodore – the firm still retains much good will

Although it is now fashionable in some quarters to snipe at Sir Clive one thing still remains He created the whole micro boom in this country starting with the ZX80 right up to the Spectrum There is hardly a single UK software house – producing for the Amstrad C64 or whatever – which doesn't owe its existance in some way to Sinclair

Sinclair paid the price with the QL of being first Software houses were slow to realise the importance of the 68000 chip and trying to persuade them to write for the QL was like squeezing water from a stone Much of the blame for the QL's comparative failure must of course still rest with Sinclair but there is no question that the QL made the acceptance of 68000-based micros from Atari and Commodore that much easier

Ironically most of the UK houses now writing for the ST and Amiga – which now includes most of the big names – owe their head start over their American counterparts to the QL. Once again Sinclair has helped the UK software houses He unwitting turned them on to the 68000, even though most now only plan QL titles as a last resort.

It must all seem very unfair if your name is Sir Clive Sinclair

But there is a chance Sinclair is thought to be working on a new 68000-based machine which finances permitting could steal the march on Atari It would be capable of running much of the new 68000 software with little conversation yet undercut the ST on price

Could Sinclair pull off such a miracle? It would be nice to think so There are still a great many people who if the right machine presented itself would buy a Sinclair micro

And why not? Without Sinclair there would have been no micro industry – at least not in its present form He is responsible for putting Britain on the world micro map – let us not forget that

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Computer Trade Association Magazine of the Year

BBC and Amstrad added as Soft Aid raises £350,000

A NEW Soft Aid compilation tape is set for release this Autumn, this time for the BBC and Amstrad machines

"Soft Aid has so far raised around £350,000 for the Band Aid trust, and putting it on the Amstrad and BBC micros could push that figure up to the half million mark" said Rod Cousens organiser of the original Soft Aid cassettes, which were inspired by Band Aid's hit record, *Do They Know Its Christmas?*

"The Band Aid trust has already received £150,000 which was passed on on July 10," Rod continued "Another £100,000 will be paid in the near future – the difficulty is the time taken for various companies to pay their share "

When Soft Aid was first released, the focus was very much on the plight of Ethiopia

Now, with the spread of famine to the Sudan and other parts of North Africa, the Band Aid Trust is distributing aid more widely

Cartoon capers

continued from page 1

Fred, Daphne and Velma, also appear in the game Scooby Doo should be out at the end of October for the Spectrum (£6 95), Commodore (£7 95) and Amstrad (£8 95) Elite has not yet started work on *Wacky Races*, but the deal has been signed.

They've run out of cartoon characters for computer games

Melbourne House plans to release an Asterix game in time for Christmas The game will take the form of an arcade adventure with Asterix himself appearing as a large 'cartoony' figure on the screen according to Melbourne House's UK head, Geoff Heath. It will be released on Spectrum, Commodore and Amstrad machines, but no price has yet been fixed

Commodore show move

THE VENUE for the Commodore Horizons Computer Show – to be held on October 26-27 has been switched from the Novotel in Hammersmith, London, to the Tech West Centre, Warple Way, Shepherd's Bush, London W12

A free shuttle bus service will link Shepherd's Bush underground station, Novotel and Tech West.

C128 launch

continued from page 1

Both machines feature 128K Ram and will run CP/M 3 0 software The C128 is fully Commodore 64 software compatible, while the 6128 is 464 and 664 software compatible.

"We are manufacturing the C128 now, and the machine will be in the shops by the end of September," confirmed Commodore UK's marketing manager, Chris Keyday. He declined to comment on the possibility that the C128 and 1570 disc unit may be offered as a single package to replace the planned built-in disc C128D model."

"The C128D will follow the C128 fairly closely – we think the machine will appeal to low-level business applications," he said

GEM on QL

continued from page 1

with Sinclair over GEM. "We have always been having discussions with Sinclair, but as yet the outcome has not been decided "

"We'd certainly like to see GEM on the QL – it would help to stabilise the software industry GEM could be ported straight across to the machine, it wouldn't even need to be recompiled "

Yet GEM needs considerably more space in which to run than the present QL's 128K The basic GEM system takes up 103K with *Gem Desktop* application taking another 77K, and a further 128K is needed as workspace for running applications under GEM

Any QL or QL derivitive running GEM would need to have at least 256K Ram or have the GEM operating system built-in as a Rom, like the final version Atari 260 ST

GEM would give the QL a fashionable icons/windows operating environment favoured by other 68000-based systems So far though, the only 68000-based system to adopt GEM is the Atari ST The Macintosh has its own WIMP (windows, icons, mouse, pointer) environment and Commodore's Amiga has the intuition software.

Sinclair recently dramatically cut the price of the present QL model by £200 down to £199

Hot hits from BT

FIREBIRD has cut the price of its Silver range of titles from £2 50 to £1 99 from mid October and announced a new range of titles that are neither Silver nor Gold

They will be called Hot Games and four titles will be released to begin with "They are too complex to go in our budget Silver range, but not right for the Gold Series," Phil continued.

The titles are *Gerry the Germ*, in which you play the part of a bacterium in the human body, *Costa Capers*, an arcade adventure set in a holiday resort, *Rasputin*, an arcade title with 3D-style graphics, and *Runestone*, the graphics and text adventure originally written by Games *Workshop*

All four will be released at the end of October for £7 95 for the Commodore 64. Conversions to Spectrum and Amstrad are set to follow.

● Firebird has also announced a delay in the release of its conversion of the Ultimate title, *Sabre Wulf*.

Sabre Wulf should now appear on the shelves within a fortnight. *Underwurlde*, the second Ultimate game to be converted to the C64 by Firebird, is due for release in mid October

Both of the Ultimate conversions will be priced at £9 95

Up-grades for CPC664 owners to 6128 spec

GERMAN company Datamedia is hoping that its Amstrad CPC664 up-grade kits will soon become available in the UK

The kits give an additional 64K Ram to the 664 enabling it to run disc software which takes advantage of the new 6128's enhanced memory, and also the CP/M 3 0 version.

Datamedia manufactures 64K, 128K, 256K and 512K cards to fit inside the CPC464 and CPC664 It has recently signed a new distribution deal which it hopes will open up export markets including the UK. No prices are yet available

Schneider, the company under whose name Amstrad machines are produced in Germany, is also developing a 64K expansion for the 664, which it plans to release in two months time However, Schneider is not intending to release the expansion here

Einstein no ho-ho!

WORKERS at Tatung, manufacturers of the Einstein computer, have been instructed not to laugh whilst working at its Telford factory.

The Taiwanese-based company has issued a circular to department heads outlining behaviour standards expected at the workplace

Included were rules on smoking, drinking and eating, smoking in the toilets and not playing or laughing in working hours.

It is unclear whether workers indulging in outbreaks of mirth were those involved with the Einstein computer

Atari deals for 130XE and 800XL

FOLLOWING the announcements of bundling packages from Commodore and Sinclair, Atari has put together 'bundles' for the 800XL and 130XE micros

The 800XL is now available in two different packs - with a joystick and game cartridge for £70, and with a data recorder, joystick and software at £99.

There are two different packs also for the 130XE – the first comprising the micro, 1050 disc drive and software is £268 65, and the second a wordprocessing package with the 130XE, 1027 printer, wordprocessing software at £350 75.

On its own, the 130XE has come down further from its original price of £169. It is now £140

Imagine team resurfaces

BRATACCAS, the Atari ST game launched at the *Personal Computer World* Show, is all that remains of Imagine Software's 'megagame' *Bandersnatch* project

Psygnosis, the company developing *Brataccas*, includes several former Fire Iron and Imagine staff, including Ian Hetherington, Dave Lawson and Eugene Evans.

After Imagine crashed in July 1984, the unfinished *Bandersnatch* 'megagame' project was bought by Sinclair Research, who commissioned Fire Iron to complete the work for the QL.

Sinclair's funding ceased several months ago, and Psygnosis was then formed by members of Fire Iron, set up and funded by business man Richard Talbot Smith

Both *Bandersnatch* and the QL were set aside as the team concentrated on the Atari ST

Letters

Great value?

With regard to G Wylie's letter (September 5), I don't know what all the fuss is about!

CPC664 owners are not 'suckers', nor have they purchased a machine that is unsupported in any way – all existing 464 software (disc and cassette) which is compatible with the 6128 will also run on the 664. Moreover, there are many who prefer the more 464-orientated styling of the 664.

So snap out of it all you 664 owners. Which other company could have provided you with a computer, disc drive, monitor, CP/M and Dr Logo all for around £320? It's still great value and it is fully supported.

Ivor Spital
Laboratory Manager
Amstrad Consumer Electronics

Gift Coupon

Here is the second of the four coupons you will need to claim your *Popular Computing Weekly* Free Gift – either *Tony Kendle's Arcade Addicts' Handbook* or a Sunshine game cassette.

Cut out the coupon and stick it on to the special reply flap attached to the front of the September 12 issue.

Free Gift Coupon No 2

Recycled chips

I agree completely with G Wylie (September 5) about Amstrad giving CPC6128's to CPC664 owners.

I bought a CPC664 on May 7 when the next Amstrad was due out in January '86. As the monitors used for the CPC664 and CPC6128 are identical, Amstrad should take back my CPC664 in exchange for a CPC6128 without monitor at no extra cost. They can take all the chips off the PCB and use them in a CPC6128 or CPC664. They can also take the disc drive and use it in a CPC6128.

As it is Amstrad will go in the *Guinness Book of Records* for the shortest lived computer.

Paul Brown
19 Wren Road
Sidcup
Kent

Black cloud

It is with growing concern that I note the ever-increasing popularity of the so-called "shoot-em-up" type of arcade game.

During man's exploration of space, it is inevitable that, sooner or later, he will encounter extraterrestrial civilisations.

It is imperative to our survival that we realise the only way to approach these aliens would be peacefully, preferably followed by a scientific and/or cultural merger. But when we are instilling into our populace the innate urge to destroy anything alien, we are simultaneously placing an ominous black cloud over man's very survival.

An even more worrying facet of the shoot-em-up cult concerns terrestrial monitoring by alien beings. We have absolutely no way of knowing whether the Earth is being monitored by a technically-superior civilisation.

Suppose for one moment that it is. Now assuming that they haven't gone through a similar "shoot-em up" phase in their past, and that the very concept of a "game" is incomprehensible to them, then what do you think they will think when they see half the Earth's population squatting over VDUs and zapping pixelised aliens with an apparently insatiable gusto.

My guess is that they would be unlikely to permit the continued existence of the human species.

I'm pinning my hopes on two things – that the aliens can read English, and that they subscribe to this magazine. If so, and they read this letter, then humanity will be able to breathe a sigh of relief.

Harry Seldon
2 Crescent Road
Grimsby



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Reviews

Wobbles

Program *William Wobbler* **Micro** Commodore 64 **Price** £12 **Supplier** Wizard Development, Alpha House, 10 Carver Street, Sheffield S1 4FS

A new departure from Tony Crowther – a game that isn't based on *Loco*

William Wobbler is a strange and complicated arcade adventure with some excellent graphics It features a central (enormous) sprite which looks like a Dragon with human body and a neck that wobbles like those nasty dogs in the backs of cars.

In essence the mechanics of the game are the usual ones, jumping over things, climbing things, collecting things, solving puzzles but the look of the game definitely gives it an edge of originality

Within the game are ten clues to solve a final riddle and there's a prize of £1 000 worth of treasure for the first to complete the game on each of the micros on which the game is available To enter you submit your solved game saved on to an official entry disc. There is no cassette *Save* facility, though the disc *Save* game is one of the nice features of the game – to do it you must actually guide William to a certain section of the game indicated by little signposts saying Save Game – a clever touch

The game is, to begin with, extraordinarily complicated, you quickly realise that you only get one life and on the first 27 goes this is lost within about three seconds as William's head is knocked off by flying frogs or his legs swiped by pink snakes The initial solution seems to be a matter of knowing which pot holes to go down some combination appears to remove certain obstacles and get you into the meat of the game I found it more infuriating than challenging though. In fact my irritation was added to by the bouncey 'Oh what a happy day we're having' music that runs through the game

Graphically very neat, and once you get involved probably utterly captivating I couldn't help wishing there was an idiot level of play to begin with even if it didn't contribute to the prize

Graham Taylor

Speed kills

Program *Deathstar* **Micro** BBC B **Price** £9 95 **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX

At last a shoot-'em-up game that demands strategy as well as fast reflexes

Deathstar is all go from the start as you fly a hyperspeed ship through space strewn with planetoids There's only one speed on this ship maximum

You have to mine planetoids for drive crystals but various nasties are stealing the bread from your mouth and using the crystals to build deathstars – the most deadly devices in the universe Your only hope is to collect enough crystals to form your own starbombs – leaving enough of them for a deathstar to run into may save your skin If you have time then shooting up the meanies is valuable – and satisfying

You do need a colour display for this game to identify the baddies and so be prepared for what they might do to you – they're mostly harmless but ...

Controls are keyboard only but sensibly set out, sound effects are reasonable and there's no horrible time waiting for you between rounds

Good fun if a little pricey

Dave and Jan Watterson

Odd bits

Program *Talos* **Micro** Spectrum 48K **Price** £7 95 **Supplier** Silversoft, Kings Yard, Carpenter's Road, London E15

Yes, I remember *Talos* big guy; 'battle robot' he called himself. Had his moment then went all to pieces and now, blow me down if we don't need our fragmented friend again.

Of course he's not himself so his first task is to find his bits – namely one arm After that, he can go off in search of the Crown of Eternity

Now this green and pleasant land is unusually bustling with (I quote) 'terrifying creatures' Such as? Psychotic snails, killer squirrels what sort of 'battle robot' is *Talos*? Not the sort you'd invite on a picnic, I'd say

If my reaction to Talos's prowess when faced with a cuddly bunny is none too hot, I'm positively underwhelmed when it comes to this game's graphics which are a good two years out of date Despite this I found it moderately enjoyable, but a nagging voice kept saying I should be getting more

John Minson

Wah! Games

Program *Waterloo* **Micro** Spectrum 48K **Price** £11 50 **Supplier** K W Software, 156 Ringinglow Road, Sheffield.

The computerised wargame can take several forms from the arcade presentation of Imagine's *Stonkers* to the approach chosen for *Waterloo* which comes with counters and hex map While this may infuriate the microchip purist it warms the heart of an old boardgamer like myself.

The battle of Waterloo is a favourite for simulationists and this is far from the most complete version available However, the reduction in complexity means that the computer can provide a powerful English army to match against French forces It has four opening strategies and then responds tactically, it seems to be a worthy opponent.

You also gain in that enemy positions remain unknown until troops become visible, something which is very difficult in traditional board games and enemy strengths can be reported as approximated after battles There's an important morale factor and your generals will question orders if they are likely to lead to heavy losses

Commands are mainly by menu, though corps are ordered by the use of keywords, such as 'Advance and engage the enemy' which again adds to mere counter shunting Presentation is unspectacular but clear and response times are good.

This won't thrill the unconverted and its minority appeal is reflected in the price, but cerebral types and cardboard Napoleons will have a field day

John Minson

Reviews

Fresh air

Program *Paradroid* **Micro** Commodore 64 **Price** £7.95 **Supplier** Hewson Consultants, 56b Milton Trading Estate, Milton Abingdon, Oxon.

It seems Hewson can do no wrong these days the classics keep on coming, this time with a game going by the name of *Paradroid*. Written by Andrew Braybrook, author of the very respectable *Gribbly's Day Out*, it comes as a breath of fresh air after what seems like a couple of weeks of platforms and ladders

Here you are given the task of clearing a ship of rogue droids With 20 different levels within the ship (most several screens in size shown in plan view) and 24 classes of droid, this would be interesting even if it were a straight forward shoot-em-up But there's more

Controlling an 'Influence Device' beamed on board the runaway, you can either destroy droids with your twin lasers, or attempt to take over control of them taking you to a screen where you must outthink your droid opponent on a pseudo-circuit board, up against a strict time limit If successful, you now control that droid (until it burns out under your unwanted influence) giving you its greater firepower, takeover ability, security clearance and so on. You must select your victims carefully, however, as attempting to takeover a powerful droid while inhabiting a weak host may cause the destruction of both.

While inhabiting a host droid, even if it is killed during combat, or burnt-out by an unsuccessful takeover, your Influence Device is left unscathed – effectively giving you almost infinite lives, if you are clever enough

I've not enjoyed a Commodore game so much since *Shadowfire*, the whole thing just hangs together so well The ship is sensibly organised – relatively harmless maintenance droids on the repair level for instance – but watch the bullets fly if you make for the bridge! And I suspect it has hidden depths I've yet to plum – the full significance of the consoles for instance – and what are those flashing thingies?

Believe me, this one has just the right balance of intellect and trigger instinct – which makes it one of my top games of the year so far.

John Cook

Disc aid

Program *Discpower* **Micro** CPC 464 (with Rom board) **Price** £39.95 **Supplier** Microwpower Ltd, Northwood House, North Street, Leeds LS7 2AA.

Out of the very many Rom software releases for the BBC one of the most respected must be *Disc Doctor Discpower*, although by a different company, is an attempt to provide a similar utility for Amstrad owners and it offers features that could make it an important buy

Amongst other things it allows you to read the information held on disc, either on a track and sector basis or by automatically tracking through a selected file The data is loaded in and held in a buffer and can be viewed in a hex ascii or disassembled form – ideal for those programs that are too long to be held in memory at the same time as a disassembler

You can also display the contents of Rom software in the same way and although of course the Roms can't be altered you can tinker and save the changes to disc You are given an introduction to the way that CP/M and Amsdos save files and an illustration of how the directory tracks can be altered directly to recover deleted or corrupted files, as long as they hadn't already been overwritten – a facility worth the cost of the Rom itself to some people

There are also utilities such as a binary-decimal-hex calculator and the ability to get information about load addresses of files This can also be edited There are also disc backup and format routines that work without having to use your CP/M systems disc – it would be invaluable if you were half way through using *Amsword* or something and ran out of disc space if it wasn't for the lunatic feature that once *Discpower* has been called up there is no way of returning to Basic with the memory intact. Despite that, it's a powerful release, but not for beginners

Tony Kendle

Jumpers

Program *Devil's Lair* **Micro** Enterprise **Price** £7.95 **Supplier** Enterprise Computers Ltd., 31-37 Hoxton Street, London N1 6NJ

Every home must have one, or rather every computer – a platform and collecting game that is

Once again it's running, jumping and standing still Or put it another way because you do more jumping than ever in this one – bounding chasms and making last minute leaps from slides

Running holds perils aplenty as you try to dodge flickering flames without treading on a variety of land mines which explode once only, and booby trapped plates which frazzle you repeatedly

At first I thought this was difficult beyond playability but gradually realised that things I'd thought impossible can be done It's a bit dull – *Jet Set Willy*'s great virtue was its humour Enterprising addicts of the genre should love it though

John Minson

In knots

Program *A Tangled Tale* **Micro** Spectrum 48K **Price** £0.99 **Supplier** Central Solutions, 150 Regent Street, London W1R 6FA

How long is a piece of string? Lewis Caroll, best known for his two 'Alice books, loved questions like this nonsense. But the best nonsense contains some truth. In 1885 he published *A Tangle Tale*, a collection of mathematical puzzles – the end of the string and the beginning of this review

Actually it s the string's beginning too because it's a loop At the start of the adventure you have to undo the knots and rescue Alice to take her to the eighth square To do so go left, solve ten puzzles of the five Wonderland characters, and end up at the right All of which had my head in circles too

How long is an adventure? This could take weeks, even without a multitude of locations It's unlike anything I've seen before, concentrating almost totally on untangling the cryptic riddles.

How cheap is a budget game? Never as cheap as this Buy it and tie yourself in knots

John Minson

What next . . .

Graham Taylor looks at ways of getting more from your micro from graphics to music. For newcomers to computing we look at packages you're likely to need first . . .

Spectrum

Of all the successful home micros the Spectrum comes with the least in the way of extras beyond the basic computer no joystick port no printer port, no tape or disc, no easy outputs for monitor and come to that, no on-off switch

First choice is almost certainly going to be a joystick interface Whilst the Spectrum has some of the best games, the Qwerty keyboard hardly makes for ideal input when the going gets tough. The most popular interface is almost certainly the Kempston. Evidence of this is provided simply by the games themselves – try to find a single recent game where joysticks are appropriate which does not have a 'Kempston or Kempston compatible' option It's a small black box that slots into the edge connector on the back of your Spectrum with a socket on the top The socket shape is standard for almost any joystick you could buy Price is £8.95 There are other devices though, although few people now make interfaces that don't have a 'Kempston emulator' option

One sensible alternative is a 'programmable' interface This allows you to assign your own format for up, down, left, right, fire, based around the Qwerty that are emulated by the joystick movement If this sounds complex it isn't really all it means is that if, for example, a game features a 'cursor control' option you can patch the joystick to act as if the cursor keys were being pressed The Comcon interface is one such, is easy to program and will support two joysticks for two player games At £19 95 it's reasonably cheap One final choice might be to buy Sinclair's own *Interface Two* which gives you two joystick ports and a cartridge port (though this latter idea was not very successful and you'll be lucky if you find a single game that uses it) The Sinclair interface is probably not as well supported as the Kempston Price £19 95

If you have bought your Spectrum for serious business purposes of if you are an intensive programmer, you will almost certainly want to connect the micro to a printer This is nowhere near as easy as it might seem. The Spectrum will not connect directly to any printer other than the Sinclair silver paper one, so to link it to a 'real' printer you are going to need another interface At an early stage you will need to know whether you want a serial or Centronics link This is partly to do with what printer you anticipate buying, most printers accept Centronics as standard with serial as a second option which requires more expenditure However, a few small printers only come with a serial port so it's worth being informed

If you go the serial interface route then things are slightly simpler, the obvious choice for a Spectrum serial interface is Sinclair's own Interface One which allows for area networking and connection to Microdrives. You may still have some problems with the right lead though.

Things are simpler with Centronics, as there are several options Again, Kempston manufactures one of the most well supported interfaces, ie some business packages are designed to let you print out on a Centronics printer via the Kempston interface Tasman, manufacture of the excellent *Tasword Two* word processor, has its own Centronics interface compatible with that program The

Kempston Centronics interface

Tasman Printer Interface costs £39 90, the Kempston with software on Eprom is £39 90

Microdrives are, these days, pretty reliable on the Spectrum and do provide something approaching a disc drive facility for the machine However, the fact remains that there is very little software that either comes on Microdrive, or even on tape with save to Microdrive option in it

Price for Interface One is £49 95 and the individual microdrive units also cost £49 95 although you can buy both bundled with some rather good software as an expansion pack which retails for £99 95

There are other alternatives to tape for the Spectrum *Discovery* from Opus is a unit that slots into the back of the Spectrum and contains a $3\frac{1}{2}$ inch disc drive The unit costs £199 95 but although popular with software houses for development has little software support

Similar software problems exist with the Rotronics Wafadrive, marketed by the franchise firm Spectrum Computers, a system which uses a flat cassette shaped storage medium using tape. It is cheaper than the Opus disc drive at £129 95, but slower

Speech Synthesisers

Another one of those expansions that seems marvellous but is seldom supported by software There are essentially two kinds of speech unit. One has a built-in existing vocabulary of words which you can access and arrange into sentences the other uses phonemes, which are small sound elements that are put together to make complete words The advantage of the latter system is that, theoretically, the range of words possible is infinitely greater; the problem is that using the system tends to be much more complicated.

Drawbacks

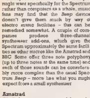
Nearly all the available speech units utilise the same General Instruments chip, which produces speech that is recognisable, but only just It always sounds like a dalek with a speech impediment and most systems have no facility for introducing expression into the voice Quite a lot of people find that the initial amusement of having your computer 'speak' wears out quite quickly and without software support for the unit, it often gets forgotten about and left on the shelf.

Suppliers

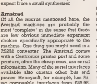
Amstrad has a phoneme based speech synthesiser that is also a stereo amplifier for £29 95. DK'tronics markets both its own speech synthesiser for the Spectrum at £24 95 and the Currah unit (Spectrum again) which also amplifies the sound at £29.95 The company also has a speech synthesiser for the Amstrad at £39 95 which, like the Amstrad official unit, amplifies the sound and speaks in stereo. The BBC speech unit is the *Speech Upgrade* chip which can be fitted inside the machine and is supposedly based on Kenneth Kendall, the ex-newsreader Price for the chip is £55

A Currah unit is also available for the Commodore 64 from Welwyn Systems, Bedlington, Northumberland. William Stuart Systems of Quarley Down House, Cholderton Wilts also have a system called *Chatterbox* which costs £39 *Speech maker* is a unit from Adman Electronics that mixes both set vocabulary and adjustable allophone techniques at £29 95 available from Adman Electronics Ripon Way, Harrogate, N Yorks HG1 2AU

for your micro



Finally on the kind of expansions you might want specifically for the Spectrum rather than computers as a whole, music fans may find that the *Beep* device doesn't give them much by way of electro music facilities – this can be remedied somewhat. A couple of companies produce three-channel synthesiser add-ons, which give the Spectrum approximately the same facilities as other micros like the Amstrad and BBC Some offer three note polyphony (up to three notes at the same time) and each of those sounds can be considerably more complex than the usual Spectrum *Beep* – more like what you might expect from a small synthesiser



Amstrad

Of all the micros mentioned here, the Amstrad machines are probably the most 'complete' in the sense that there are few obvious immediate expansion choices specifically appropriate to the machine One thing you might need is a RS232 converter The Amstrad comes with a Centronics printer port and some printers, often the cheap ones, use serial information. Many of the serial interfaces available also contain other bits and pieces Honeysoft, for example, has Basic compatible interfaces from £29 95 Timatic Systems do a dual RS232 with 8-bit printer port that will connect not only to printers but also modems and touchpads as well for £59 00 Amstrad's official unit comes with Rom software at £49 95.



Open disc drive

If you have bought a green-screen version of the 464 or 6128 you may decide at some point that you want colour At present there don't seem to be any plans to sell the Amstrad colour monitors individually, so one option is to buy a TV modulator which will allow you to connect your machine to an ordinary television – though with a loss of screen resolution Amstrad market its own MP1 for the 464 and MP2 for the 6128 These are small boxes which connect computer to the TV aerial socket, both cost £29 95

CPC 464 owners may find they wish to up-grade to disc drive fairly quickly The Amstrad disc drive is not only cheap at £159 95, but also comes with software that'll let you run CP/M software on your machine

Not only that but nearly every Amsoft title and most others are availabe on disc as well as cassette and already special disc only versions of games are appearing with extra features Additional disc drives cost £98 95

Commodore 64

The big problem with the Commodore, is the way Commodore has designed the machine only to be immediately compatible with Commodore printers Many people may want to to link the machine to an existing printer, perhaps having up-graded from a previous machine.

The problem can be solved by the purchase of a interface which converts the unusual configuration of the Commo-

continued over the page

Hardware Amstrad LP-1 Light Pen **Price** £19 95 **Machine** – all CPC's (except 8256) **Supplier** Amsoft, Brentwood House, 169 King's Road, Brentwood, Essex.

Following on from the contest between their speech boxes and sound amplifiers the race between DK Tronics and Amsoft to bring out CPC peripherals enters another round with this light pen Once again Amsoft have released theirs slightly later than the independent company and once again they are not compatible ensuring that whilst DK Tronics will have snatched a large proportion of sales no one will be sure which, if any, to support with software

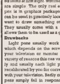
First of all it has to be said that the DK Tronics release is more versatile – the LP-1 will not operate on a green screen monitor, and you are told that the supplied software, which is Mode 1 or Mode 0 only, will not work if there is a speech chip or serial interface fitted which seems an absurd case of Amsoft spurning their own hardware Whether it means that no light pen software will work with these peripherals I cannot say, but it must mean that writing such is no easy task.

One thing the LP 1 does score major points on is that it fits into the joystick port This strikes me as being rather clever and will be a relief to those who have an ugly daisy chain of add-ons hanging from the disc edge connector and find they can barely make the pathetically short monitor leads stretch the required distance Cynics however may suggest that Amsoft have chosen to use the joystick port because it is the only one they have kept standard over all their machines Again I cannot say

The supplied graphics design software is far from exciting – it completely lacks the elegance and care that DK Tronics put into theirs, but it does provide some useful features that are lacking in Amsoft's own Screen Designer, most notably the ability to magnify and copy blocks of the screen into different places However it is functional and manages to provide most of the options where a light pen would make a useful contribution, eg, box, hand draw circle, fill, and position text There is a dump to printer option but it only works on the DMP 1 rather than an Epson standard. The software is unprotected so you can list it to discover how to use similar routines in your own program – indeed you will have to since the manual carefully avoids this subject entirely

The overall impression is that Amsoft may have had a bit too much too worry about lately with their new machines The LP-1 is a pleasingly simple and cheap piece of hardware but has been bundled in with some uncharacteristicly drab software support and a manual that looks like it was rushed out in a hurry Try out the competition before you buy this one.

Tony Kendle



Light Pens

Light pens appear to be rather complicated items at first sight whereas in fact they are simple The only real use for a light pen is in graphics packages where they can be used to precisely locate where you want to draw something on the screen. They usually come with a program that allows them to be used as a graphics tool.

Drawbacks

Light pens usually work on a system which depends on the screen refresh of your television or monitor For a whole variety of reasons this can vary enormously and usually each light pen has to be recalibrated by you for correct adjustment with your television. Badly calibrated light pens simply fail to respond to the right location on the screen.

The problem is that the calibration can be a seemingly endless process, particularly with an old TV you can find yourself doing it over and over again And light pens are probably not accurate enough generally for people wanting to produce professional quality graphics work.

Suppliers

DK 'Tronics (Unit 6, Shire Hill, Industrial Estate, Saffron Walden, Essex) makes a Spectrum light pen which has some good software with it for £19 95 and also an Amstrad light pen for £24 95 Amstrad s offical light pen (see review) costs £24 95 from Amstrad, PO Box 462, Brentwood, Essex CM14 4EF

BSF CSL's *Graphkit* is a drawing utility that comes with a free light pen at £13 95 on tape for the Commodore 64 Details from BSF CSL 82 Furnace Drive, Crawley, West Sussex RH10 6JE.

What next . . .

dore 64 to Centronics or serial There are several available, the cheapest being the *Access* interface cable which fits into the usual printer socket, but produces a standard RS232 output More sophisticated is *Turboprint*, a unit that plugs into the expansion port and produces a Centronics output It comes in a variety of formats, some of which include things like printer buffers The basic system costs around £50

Next purchase may very well be a disc drive The 1541 disc drive is slow by anybody's standards Nevertheless many games are disc-based, a disc drive is essential for business uses and generally it loads (slightly) more quickly than tape Price for the unit is currently £299 although it is due to be replaced by a faster version sometime next year The 1541 is also soon to be offered in a special pack together with a printer and

Music

An enormous topic with so many different permutations that it's near impossible to cover them all.

The most significant single development in this area has been the introduction of expansions to make your micro Midi compatible

Midi is an electronic standard agreed between the manufacturers of electronic instruments that enables them to be used with one another

Giving a computer Midi compatibility means that it can be used to control electronic keyboards store note information, act as a composing tool and even, with a few more add-ons like sound devices and keyboard, join in the music directly

Hybrid Technology has developed *Music 500* which for £198 gives your BBC not only Midi compatibility but also a powerful sound generation system as well. The Commodore 64 has recently gained a whole range of musical devices, many of them being marketed by Commodore itself These include an FM voice expander for around £100 and a four octave keyboard for £65 though details are not finalised yet

The Spectrum fares less well mainly because its own sounds are so poor to start with. Nevertheless Cheetah is marketing a drum synthesiser package for £29.95, which features good quality sampled voices

Drawbacks

It's expensive To really play music you will need a Midi equipped keyboard which means £300 as a minimum Even those small units which come as cheap add-ons to the computer, like the new Commodore devices will need decent amplification.

You may quickly find that leads, tapes, and other units start to make music a very pricey hobby indeed.

Suppliers

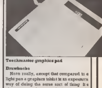
Several companies have Midi systems Siel has a range of packages which are designed (mostly) around the Commodore 64 and its own synthesisers. Details from Vince Hill, 35A Grove Ave, Muswell Hill N10 Passport has a large range of software for the Apple and Commodore 64 including educational and recording packages Prices start at £60 for a four track recorder Details from Passport Designs, Ritter Music Europe, M Broomgrove Gardens, Edgware, Middx. Electromusic Research produces Midi hardware for Spectrum, BBC and Commodore (around £80 per package) and supports this with a number of software packages including DX voice control and eight track real time recorders. Contact. 14 Mount Close, Wickford, Essex SS11 8HG Details on the Spectrum drum synthesiser mentioned above from Cheetah Marketing Ltd, 1 Willowbrook Science Park, Crickhowell Road, St Mellons, Cardiff

Acorn Music 500 synthesiser

Graphics Tablets

These devices are usually considered the professional version of light pens. They consist of a flat board which receives signals when pressed by a metal stylus. The board 'mimics' the TV screen in structure – thus pressing the board in the middle is analagous to pointing a light pen at the centre of the screen Most professional games artists and illustrators use such a system and an accurate board with good software can create excellent results

All of the units mentioned here fit into the computer's edge connector and come with their own software



Touchmaster graphics pad

Drawbacks

None really, except that compared to a light pen a graphics tablet is an expensive way of doing the same sort of thing It's also a very cumbersome device that needs a largish flat surface

Suppliers

Commodore owners have a choice of several devices – the *Koalapad* by Audiogenic costs £79.95 and uses icon based software Audiogenic 34 Suttons Industrial Park, London Road, Reading Berkshire Touchmaster do a very sophisticated tablet which comes at the equally sophisticated price of £120 Touchmaster, PO Box 3, Port Talbot West Glamorgan. The same unit with different edge connectors and software is also available for the Spectrum and Dragon. Saga Systems will shortly introduce a graphics tablet for the Spectrum at about £80 which uses its interface/A/D converter unit Saga Systems is at 2 Eve Road, Woking Surrey British Micro has recently launched *Grafpad 2*, a standard unit which comes with different interfaces and software for a number of machines Price for the tablet is £44.95, the interfaces cost £23 64 British Micro, Penfold Works, Imperial Way, Watford, Herts.

word processor for £199 99

BBC

The basic BBC comes with more ports than most people know what to do with, so there are few problems with connections to external devices

Curiously, however, it does not have a port to take a standard Atari-style joystick, you need either special joysticks which fit into the analogue port or a special adaptor

The official Acorn disc drives are very good, but require a disc filing system to be fitted to the machine – if you don't have one it'll cost about £95 Almost equally popular are the Cumana disc drives which cost around £128 for a single-sided 40-track 100K unit.

Because the BBC comes with the most 'extras' as standard it is also one of the most expandable micros. The 6502 and Z80 second processors (£175 and £220, respectively) will both speed up processing times significantly – the Z80 will give the BBC some CP/M compatibility, the 6502 lets you run a beefed up version of *Elite!* (and a few other things too)

QL

Some would say that the only real question with the QL is whether you want to save your data successfully and reliably or not. If you do you'll need disc drives If not, the microdrives are fine

There are several disc drives available for the machine Sinclair has badge engineered a 3½ inch model by Microperipherals which will presumably be supported automatically by any future software from the company, which costs £298 70 Quest also does a disc drive – a 5¼ inch which costs, in its single 200K version, £249 CST also does a Centronics interface at £50 and an IEEE Interface at £195

On a more mundane level, if you want to use normal joysticks with the QL you will need an interface, since Sinclair have only provided the odd-shaped serial ports A couple of companies do connectors that provide an Atari style joystick Eidersoft has one at £5 49

Eidersoft *The Office, Hall Farm, North Ockendon, Upminster, Essex RM14 3QH*
CST *30 Regent Street Cambridge CB2 1DB*
Quest *School Lane, Chandlers Ford, Hampshire*
Kempston *Singer Way, Kempston, Beds, MK42 7AW*
Camcam from **FREL Ltd** *1 Hockleys Mill, Temside, Ludlow, Shropshire SY8 1PD*
Sinclair *Stanhope Road Camberley, Surrey.*
Honeysoft *28 Crescent Road, Brentwood Essex CM14 5JR*
Timatic Systems *Newgate Lane Fareham, Hants PO14 1AN*
Amstrad *PO Box 462 Brentwood, Essex, CM14 4EE*
Access Interface Cable from **The Computer Centre** *61 Shaw Heath Stockport*
Turboprint from **Norbain Micros** *Norbain House, 14-18 Boulton Rd Reading*
Commodore *1 Hunters Road Weldon North Industrial Estate, Corby Nhants*
Acorn *Fulbourn Rd Cherry Hinton Cambridge CB1 4JN*
Opus Supplies *158 Camberwell Road, London SE5 0EE*
Spectrum Computers *5 Hanting Gate Hitchin Herts SG4 0TJ*

Hardware Saga Elite keyboard **Micro** Spectrum **Price** £79 95 **Supplier** Saga Systems, 2 Eve Rd, Woking, Surrey, GU21 4JJ (04862-22977).

It makes a reviewer's life hard when a new product has few discernable faults or omissions Imagine the difficulty, then, in reviewing an add-on keyboard for the Spectrum, which is so much better than anything else on the market that it makes most of the opposition look like toys

Few Spectrum owners will doubt the value of a proper mechanical keyboard – the positive feel and improved appearance most units lend to the Spectrum makes them a worthwhile purchase

The Saga Elite keyboard is devastatingly smart and appears to have no significant operating problems at all As with most products of its kind, the keyboard is fitted by removing the Spectrum's PCB from its case, mounting it to the new Elite keyboard and connecting up the two ribbon cables, and screwing together the case That's all there is to it – and your humble Spectrum (or Spectrum +) is transformed from a kiddy keyboard to something resembling an IBM PC

The Saga Elite isn't designed to accommodate the Spectrum's power supply – perhaps wisely since most attempts to do this have proved to be awkward or unreliable In fact there are none of the gimmicks such as built-in sound amplifiers or interfaces, which tend to complicate some units. What the Elite does offer is an unmatched selection of keys – 88 in all – set in a slim cream case designed to resemble an Apricot or IBM unit.

The keys are screen printed with black legends, and have a positive action which is unlike anything else on the market, but which soon becomes familiar To the left of the unit is a cluster of ten often used Basic command keys – *True Video, Inv Video, Load, Save, Clear, Copy, Pause, List,* and *Run* It goes without saying that it's very helpful to have these special keys to hand while programming

On the left hand side of the main key cluster is another set of little helpers – *Edit, G Mode, Caps Lock, Symbol Shift* and *Extended Mode* keys The only reservation about the Elite keyboard is that these keys leave very little space for the *Caps Shift*; it would be easy to find yourself hitting *Symbol Shift* by mistake.

The main key cluster has a full-size space bar at the bottom, and to the right there are some special function keys – ?, ", –, $,£, *Stop Enter,* full stop and comma The last section of keys consists of a numeric keypad with a double-sized 0 four cursor keys (arranged in a line rather than in an MSX-type cross) four mathematical function keys, and *Delete*

The slots for power, I/O, Load/Save and Monitor are properly aligned and cut out – unlike those in some units available – and there's another slot, the function of which isn't identified, unless it's for some kind of supplementary earth connection.

The Elite is wider than a Commodore 64, (though not so wide as an Amstrad,) so some users might have to clear a bigger space on their desks. Apart from that problem, and the minor carp over the *Shift* key, there aren't any obvious disadvantages to the Elite It's easy to fit works well, offers an excellent selection of extra keys, and looks incredibly smart As for the relatively high price – do you want your Spectrum to have the best, or don't you?

Chris Jenkins

Skippit

Patience is a virtue in this inventive game for the Spectrum by Mary Tate

This is a game of patience in which you are challenged to clear the board of coloured bugs. Use the cursor keys on your Spectrum to move the Black Gobbler over the playing area. For the purposes of scoring, the energy value of the different bugs is as follows: Red – two, Magenta – three, Green – four, Cyan – five, Yellow – six.

The Black Gobbler must eat all the Red bugs before his delicate digestive system can cope with the next colour, Magenta ... and then on to Greens ... and so on up to the Yellows.

You start with an energy level of 20 which increases by the energy value of each bug eaten. However, each incorrectly coloured bug the Black Gobbler tackles is tossed behind him, and the effort required decreases your energy level of the appropriate amount.

Once the last Magenta bug has been eaten, the ghosts of exterminated bugs begin to appear, obstructing previously clear paths – they use up seven units of energy for each one you have to move.

Successful Gobblers retain energy gained from Menu One, and are allowed seconds, with another plateful of bugs being served up. This serving is even more difficult to devour, as some ghosts remain from the first screen.

Hint – patience is a virtue. Don't lose your temper if the Gobbler seems to take off on his own. Just move one step at a time and he will behave himself.

Note that the underlined capitals in Lines 40, 60, and 3020 should be entered in graphics mode. Also, the underlined axes in Lines 70-90 should be entered in as the chequered symbol found on that key. Good luck!



```
   5 REM "skippit
   6 REM ** by MARY TATE 1985 **
  10 GO SUB 5000: GO SUB 1500: DIM c(8)
  15 POKE 23658,8: LET hiscore=50: LET n$= GR
AEME"
  20 CLS : LET sh=0: LET sh=0: LET score=20
  25 FOR a=1 TO 8: LET c(a)=0: NEXT a
  30 LET y=11: LET x=10
  35 LET cl=0: LET kl=0
  40 LET b$= AB"
  50 LET c$= CD'
  60 BORDER 1
  65 PAPER 1: CLS
  70 FOR A=1 TO 20: INK 0: PRINT AT A,1;"G":
PRINT AT A,22;"G": NEXT A
  80 PRINT AT 1,1; GGGGGGGGGGGGGGGGGGGGGG"
  90 PRINT AT 20,1; GGGGGGGGGGGGGGGGGGGGGG'
  95 PRINT  INK 7;AT 0,9;'MENU ';sh+1
 100 FOR b=2 TO 21 STEP 2
 110 FOR a=2 TO 18 STEP 2
 120 IF b=10 AND a=10 THEN  GO TO 250
 130 LET ink=1+INT (RND*6)
 135 IF sh=1 AND ink=1 THEN  LET ink=7
 140 IF ink=1 THEN  LET ink=2
 150 INK ink
 160 PRINT ;AT a,b;b$
 170 PRINT ;AT a+1,b;c$
 180 BEEP .01,RND*60-10
 190 IF ink=1 THEN  LET c(1)=c(1)+1
 200 IF ink=2 THEN  LET c(2)=c(2)+1
 210 IF ink=3 THEN  LET c(3)=c(3)+1
 220 IF ink=4 THEN  LET c(4)=c(4)+1
 230 IF ink=5 THEN  LET c(5)=c(5)+1
 240 IF ink=6 THEN  LET c(6)=c(6)+1
 250 NEXT a
 260 NEXT b
 300 GO SUB 1300
 400 POKE 23673,0
 500 INK 0: PRINT  FLASH 1;AT y,x;c$: PRINT
FLASH 1;AT y-1,x;b$
 600 IF INKEY$= 5  AND ATTR (y,x-1)>=9 THEN
LET x=x-2: GO SUB 900: INK cl: PRINT AT y,x+2
;c$: PRINT AT y-1,x+2;b$: GO TO 640
 610 IF INKEY$='8' AND ATTR (y,x+2)>=9 THEN
LET x=x+2: GO SUB 900: INK cl: PRINT AT y,x-2
;c$: PRINT AT y-1,x-2;b$: GO TO 640
 620 IF INKEY$="6" AND ATTR (y+1,x)>=9 THEN
LET y=y+2: GO SUB 900: INK cl: PRINT AT y-2,x
;c$: PRINT AT y-3,x;b$: GO TO 640
 630 IF INKEY$= 7" AND ATTR (y-2,x)>=9 THEN
LET y=y-2: GO SUB 900: INK cl: PRINT AT y+1,x
;b$: PRINT AT y+2,x;c$: GO TO 640
 640 IF PEEK 23673>4 THEN  PRINT  FLASH 1; IN
K 7;AT 19,25;"HURRY';AT 21,27;'UP": POKE 2367
3,0
 645 BEEP .01,RND*40-10
 650 GO TO 500
 900 LET cl=ATTR (y,x)-8
 910 BEEP .01,RND*40-10
 920 POKE 23673,0: PRINT AT 19,25;"      ";AT
21,27;"  "
1010 IF c(2)>=1 THEN  LET kl=2
1020 IF c(3)>=1 AND c(2)=0 THEN  LET kl=3
1030 IF c(4)>=1 AND c(3)=0 THEN  LET kl=4
1040 IF c(5)>=1 AND c(4)=0 THEN  LET kl=5
1050 IF c(6)>=1 AND c(5)=0 THEN  LET kl=6
1060 IF c(3)=0 THEN  GO SUB 3000
1110 IF cl>kl THEN  LET score=score-cl
1120 IF cl=kl THEN  LET c(cl)=c(cl)-1: LET sc
ore=score+kl: LET cl=1
1140 BEEP .01,RND*40-10
1300 PRINT  INK 7;AT 0,24;'ENERGY'
1310 PRINT  INK 7;AT 2,28;score;" "
1320 IF score<=0 THEN  GO TO 4000
1330 PRINT  INK 2;AT 4,25;b$;  ";AT 5,25;c$;"
 "; INK 7;c(2);" "
1340 PRINT  INK 3;AT 7,25;b$;"  ;AT 8,25;c$;"
 "; INK 7;c(3);' '
1350 PRINT  INK 4;AT 10,25;b$;" ';AT 11,25;c$
;' '; INK 7;c(4);" "
1360 PRINT  INK 5;AT 13,25;b$;" ';AT 14,25;c$
;' "; INK 7;c(5);" '
1370 PRINT  INK 6;AT 16,25;b$;' ';AT 17,25;c$
;" "; INK 7;c(6);' '
1380 PRINT  INK 7;AT 21,1;'HI-SCORE ";hiscore
;" by ';n$
1390 IF c(6)=0 THEN  GO TO 2000
1400 RETURN
1500 FOR n=1 TO 4: READ p$
1510 FOR f=0 TO 7
1520 READ a: POKE USR p$+f,a
1530 NEXT f
1540 NEXT n
1550 RETURN
1560 DATA "a",0,3,15,15,63,127,254,255
1570 DATA "b",0,128,224,248,248,252,254,255
1580 DATA "c",63,103,67,17,57,19,6,0
1590 DATA "d",254,243,235,196,206,100,48,0
2000 GO SUB 9000
2005 IF sh=0 THEN  LET sh=1: GO TO 25
2010 FOR a=0 TO 7: CLS : PAPER a: BEEP .1,RND
*40-10: BORDER RND*7: NEXT a: PAPER 7: CLS :
PRINT  INK 1;AT 16,10;"WELL DONE "
2020 PRINT  INK 0;AT 18,10;'SCORE ";score
2030 PAUSE 25: POKE 23692,255: FOR a=1 TO 17:
 PRINT : PAUSE 3.5: NEXT a: BORDER 1
2040 IF score>hiscore THEN  INPUT "PRINT YOUR
 NAME UP TO 6 LETTERS  ";n$: LET hiscore=score
2050 INK 0
2060 IF LEN n$>=7 THEN  LET n$="BAMPOT"
2140 PRINT AT 16,8;"PRESS ANY KEY ": PAUSE 0:
 GO TO 20
3000 LET a=2*INT (RND*9)+2: LET h=2*INT (RND*
9)+2
3020 IF ATTR (h,a)<=9 THEN  INK 7: PRINT AT h
,a; AB": PRINT AT h+1,a;"CD": INK 0
3030 RETURN
4000 IF sh=0 THEN  PAUSE 100: CLS : PRINT  IN
K 7;AT 6,2;"YOU ARN T VERY GOOD AT THIS ",,"
  IN FACT YOU ARE A REAL THICKY",,"  WHERE W
ERE YOU WHEN THE BRAINS",,"  WERE GIVEN OUT'
4020 IF sh=1 THEN  PAUSE 100: CLS : PRINT  IN
K 7;AT 6,9;"HARD LUCK";AT 8,9; TRY AGAIN"
4040 FOR a=0 TO 100: BEEP .003,RND*40-10: NEX
T a
4050 PRINT AT 14,4;"PRESS ANY KEY FOR NEW GAM
E "
4060 PAUSE 0: GO TO 20
5000 BORDER 0: PAPER 0: INK 0: CLS : PRINT AT
 0,12;"SKIPPIT"
5005 PRINT
5010 PRINT "    OBJECT: TO CLEAR BOARD OF   C
OLOURED BUGS."
5015 PRINT
5020 PRINT "THE ENERGY VALUE OF THE BUGS    A
RE AS FOLLOWS RED 2. MAGENTA 3.GREENs 4.CYANs
 5. and YELLOWs 6."
5025 PRINT
5030 PRINT "GUIDE THE BLACK GOBBLER WITH THEA
RROWED KEYS TO EAT THE BUGS.'
5035 PRINT
5040 PRINT "START WITH THE LOWEST VALUE ONESA
ND WORK UP TO THE HIGHEST.
5045 PRINT
5050 PRINT "DURING THE GAME THE GHOST OF    E
XTERMINATED BUGS WILL APPEAR.  THESE SHOULD B
E AVOIDED AS THEY LOSE YOU 7 UNITS EACH HIT."
5060 PRINT "          GOOD LUCK"
5080 FOR X=22528 TO 23220: POKE X,7: PAUSE 1:
 BEEP .01,60: NEXT X
5085 FOR X=22528 TO 23220: POKE X,RND*3+3: NE
XT X
5090 PAUSE 500: RETURN
9000 CLS
9001 FOR A=1 TO 10
9003 INK RND*6+2
9005 BEEP .002,a*sh
9010 PRINT AT 11+A,11;c$
9020 PRINT AT 11-A,11;c$
9030 PRINT AT 11+A,11+A;c$
9040 PRINT AT 11+A,11-A;c$
9050 PRINT AT 11-A,11+A;c$
9055 PRINT AT 11,11+A;c$
9060 PRINT AT 11-A,11-A;c$
9065 PRINT AT 11,11-A;c$
9068 PRINT  FLASH 1;AT 11,10;b$+b$
9070 NEXT A
9080 LET sh=sh+1
9090 IF sh=4 THEN  LET sh=0: RETURN
9095 GO TO 9001
```

Permanent changes

Personalise your 64 with this Rom development routine – by ***Tim Decker***

The idea for this program came when some of my friends managed to get hold of an Eprom burner. They then made themselves a new Kernal Rom that defaulted to disc and changed the start-up message on their computers. They had in fact done a bad job, one thing being that the cursor used to become invisible. How much better to do everything with software first to prevent any bugs.

This program, once run, does the following. The computer is made to default to disc. The screen and border colours are changed to black and the cursor colour to green. Pressing *shift run/stop* loads the directory from disc and lists it. Finally owners of older machines can now ese a character poked to the screen without changing colour memory.

The program still works if *Sys 64738* is called. However, a reset button will put the Rom back in. This unfortunately cannot be avoided, but after resetting the computer *Poke1, 53* will reactivate the program.

From the assembly listing it can be seen that the program can be extended to change anything, in either the Basic or Kernal Ram. Other possible changes are a different start-up message or screen colours. The ambitious may like to put in a parallel printer interface or a fast disc operating system in place of the RS 232 routines.

Once you have developed your new Rom and tested it, you might like to get hold of an Eprom burner and make your changes permanent.

```
5 REM *** BASIC LOADING PROGRAM ***
10 FOR A = 49152 TO 49241
20 READ B
25 POKE A,B
30 C=C+B
40 NEXTA
50 IF C <>14101 THEN PRINT"DATA ERROR":END
60 SYS49152
500 DATA  160, 0, 132, 251, 169, 160, 133, 252, 162, 96, 177, 251, 145, 251
501 DATA  200, 208, 249, 230, 252, 202, 208, 244, 162, 8, 189, 79, 192, 157
502 DATA  231, 236, 202, 208, 247, 169, 8, 141, 218, 225, 141, 40, 226, 169
503 DATA  0, 141, 217, 236, 141, 218, 236, 169, 5, 141, 53, 229, 169, 134
504 DATA  141, 219, 228, 169, 2, 141, 220, 228, 169, 229, 141, 214, 253, 169
505 DATA  53, 133, 1, 32, 68, 166, 76, 102, 254, 76, 207, 34, 56, 13
506 DATA  76, 201, 58, 13, 255, 253
```

```
  6 033C          ' ROM DEV BY TIM DECKER
  7 033C          ' WRITTEN USING MIKRO ASSEMBLER
 10 C000          *=$C000
 20 C000          SHIFTRUN    = $ECE7                    ' HOLDS THE STRING FOR SHIFT RUN STOP
 30 C000          TLEN        = 8                        ' NUMBER OF CHARACTERS IN STRING
 40 C000          ROMSTART    = $FB                      ' 0 PAGE STORE FOR MOVING ROM TO RAM
 50 C000 A000                 LDY #$00
 60 C002 84FB                 STY ROMSTART
 70 C004 A9A0                 LDA #$A0
 80 C006 85FC                 STA ROMSTART+1
 90 C008 A260                 LDX #$60
100 C00A B1FB     PUTRAM      LDA (ROMSTART),Y           'MOVE ROM TO RAM
110 C00C 91FB                 STA (ROMSTART),Y
130 C00E C8                   INY
134 C00F D0F9                 BNE PUTRAM
140 C011 E6FC                 INC ROMSTART+1
150 C013 CA                   DEX
160 C014 D0F4                 BNE PUTRAM
170 C016 A208                 LDX #TLEN                  'MOVE NEW SHIFT RUN STRING INTO RAM
180 C018 BD4CC0 NEWSHIFT      LDA STRING,X
190 C01B 9DE7EC               STA SHIFTRUN,X
200 C01E CA                   DEX
210 C01F D0F7                 BNE NEWSHIFT
220 C021 A908                 LDA #$08                   ' CHANGE DEVICE NUMBER
230 C023 8DDAE1               STA $E1DA                  ' LOAD & SAVE
240 C026 8D28E2               STA $E228                  ' FILES
250 C029 A900                 LDA #$00                   ' NEW SCREEN COLOUR
260 C02B 8DD9EC               STA $ECD9
270 C02E 8DDAEC               STA $ECDA
280 C031 A905                 LDA #$05                   ' CHARACTER COLOUR
290 C033 8D35E5               STA $E535
300 C036 A986                 LDA #$86                   ' VISIBLE SCREEN POKES ON OLD 64'S
310 C038 8DDBE4               STA $E4DB                  ' BY SETTING COLOUR MEMORY
320 C03B A902                 LDA #$02                   ' TO THE CURRENT COLOUR CODE
330 C03D 8DDCE4               STA $E4DC
340 C040 A9E5                 LDA #$E5                   ' ENSURES THAT RAM STAYS IN
342 C042 8DD6FD               STA $FDD6                  ' WHEN SYS 64738 IS CALLED
343 C045 A935                 LDA #$35                   ' SWITCHES IN RAM
344 C047 8501                 STA $01
350 C049 2066FE               JSR $FE66                  ' RESETS COMPUTER
400 C04C          STRING       ' NEW SHIFT RUN STRING
410 C04C 4CCF22               BYT $4C,$CF,$22,$24,$0D,$4C,$C9,$3A,$0D
```



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End of the process

Concluding our simple wordprocessor for the BBC – written by M Smith

To Split a Paragraph there are two procedures depending on whether you are indenting or not. If you are not indenting, position the cursor under the space at which you wish to split, press *f2*, then *f8*, then *Return*. When you display the text in the justified mode, there will be your extra paragraph. If you require an indented paragraph, after the split, position the cursor under the space at which you wish to split, press *f5* and wait for the screen to clear. Type in *zzzzz* and press *f2*. When you are returned to the Edit Mode position the cursor under the first *z* press *f7* then *f8*, press the space bar five times, then press *Return*. The next time you preview the text your extra paragraph will be there fully indented.

To Jump press *f9* followed by *D* for *Down* or *U* for *Up* and enter the number of lines you wish to jump. Press *Return* and the display will change.

After Editing on returning to the Entry Mode (via *f1*) you may find that the Entry Cursor is not in the correct position. Use the *Delete* key to run the cursor back to the last letter already entered, and either re-start from this point if it is in the middle of a paragraph or press *Return* if it was the last letter of a paragraph.

Save To or Load From Tape, press *f5* or *f6* and follow the prompts. The routine is the standard *Beeb* routine so keep your filenames down to under ten letters.

Print or Preview. *f7* opens Print Mode and you will be prompted from the screen. Use the Justified Mode for all printing unless you have laid out the page in an exact format. To Preview the Justified format press *f6*. The display is in the paged mode to give you time for checking. Press *Shift* to move the text on.

Any wordprocessor is only as good as the instructions you get with it and these are rather short, so if you run into any problems you can't solve please write to me and if I can help I will.

The program is fairly tightly packed and if you find the idea of typing it all in a little daunting I will be happy to send you a copy on tape for £3 and a 17p stamp (or £6 for an advanced disc version). Please write to M Smith, Gwylfa, Llangadfan, Welshpool, Powys SY21 0NW.

```
  870DEFPROCPT:CLS:PRINTTAB(0,3)"DO YOU
WISH TO PRINT IN THE JUSTIFIED FORMAT (Y
 OR N)";REPEAT:G$=GET$:UNTILG$="Y"ORG$="
y"ORG$="n"ORG$="N":CLS
  880IFG$="Y"ORG$="y"VDU2,31,0,0:PROCJ:V
DU3:ENDPROC
  890IFG$="N"ORG$="n"VDU2,31,0,0:PROCPA:
VDU3:ENDPROC
  900DEFPROCS:CLS:INPUTTAB(0,3)"UNDER WH
AT NAME DO YOU WISH TO SAVE THIS ITEM
"N$
  910*OPT1,1
  920Q=OPENOUTN$:PRINT#Q,M:A=10960
  930BPUT#Q,?A:A=A+1:IFA<16241GOTO930
  940CLOSE#Q:ENDPROC
  950DEFPROCL:CLS:INPUTTAB(0,3)"UNDER WH
AT NAME DID YOU SAVE THE ITEM    "N$
  960*OPT1,1
  970Q=OPENINN$:INPUT#Q,M:A=10960
  980?A=BGET#Q:A=A+1:IFA<16241GOTO980
  990CLOSE#Q
 1000IF?M=0 M=M-1:GOTO1000
 1010M=M+1:ENDPROC
 1020DEFPROCCLH:CLS:PRINTTAB(10,5)"ARE YO
U SURE AS THIS WILL ERASE ANY TEXT ALREA
DY IN MEMORY (Y OR N)":REPEAT:G$=GET$:UN
TILG$="Y"ORG$="y"ORG$="N"ORG$="n"
 1030IFG$="Y"ORG$="y"PROCC ELSEENDPROC
 1040ENDPROC
 1050DEFPROCER:VDU15,12,3,31,1,5:CLOSE#0
 1060IFERR=17ENDPROC
 1070PRINT"AN ERROR HAS OCCURED SO I LL
RETURN YOU TO THE MENU TO TRY AGAIN.":PR
INTTAB(1)"YOU MAY HAVE TO USE EDIT MODE
IF YOUR TEXT HAS BEEN AFFECTED.":PROCD(3
00):ENDPROC
 1080PROCER:GOTO90
 1090DEFPROCI:FORM=M TOM+5:?M=32:PRINT;C
HR$32;:NEXT:ENDPROC
 1100DEFPROCJM:PRINTTAB(15,22)"UP OR DOW
N THE PAGE (U OR D)":REPEAT:G$=GET$:UNTI
LG$="U"ORG$="u"ORG$="D"ORG$="d":INPUTTAB
(15,23)"HOW MANY LINES    "K
 1110IFG$="U"ORG$="u"THENM1=M1-(K*80):IF
M1<10960THENM1=10960
 1120IFG$="D"ORG$="d" THENM1=M1+(K*80):I
F M1>M THENM1=(M DIV80)*80
 1130PRINTTAB(0,22)SPC159:ENDPROC
 1140DEFPROCPA:VDU23,1,1;0;0;0;
 1150A=M1+HP:T=16240:S=M
 1160IFM<T PRINTTAB(18,22)"PLEASE WAIT W
HILE I CREATE SPACE"ELSEGOTO1280
 1170REPEAT:T=T-1:S=S-1:?T=?S:UNTILS=A
 1180CLS:PRINTTAB(25,2)"f2...COMPLETES E
NTRY":VDU31,0,7
 1190H=GET
 1200IFH=127 A=A-1:VDU127:GOTO1190
 1210IFH=9 ?A=4:A=A+1:PRINTCHR$32;:FOR P
=A TOA+5:?P=32:PRINTCHR$32;:NEXT:A=A+6:G
OTO1190
 1220IFH=13ANDA MOD80<>0FORP=A TOA+(79-A
 MOD80):?P=4:PRINTCHR$32;:NEXT:A=A+(80-A
 MOD80):GOTO1190
 1230IFH=13ANDA MOD80=0FORP=A TOA+79:?P=
5:PRINTCHR$32;:NEXT:A=A+80:GOTO1190
 1240IFH=150GOTO1260
 1250IFA<T PRINTCHR$H;:?A=H:A=A+1:GOTO11
90ELSEGOTO1280
 1260PRINTTAB(18,22)"PLEASE WAIT WHILE I
 RE-ORGANISE YOUR TEXT"
```

```
1270REPEAT:?A=?T:?T=0:A=A+1:T=T+1:UNTIL T=16240:M=A:VDU23,1,0;0;0;0;:ENDPROC
1280PRINTTAB(25,22)" TOO LITTLE ROOM ";PROCD(300):VDU23,1,0;0;0;0;:ENDPROC
1290DEFPROCDL:PROCBTEND(0):PROCRID:ENDPROC
1300DEFPROCBTEND(A):Q=0
1310IFA=0 A$="FIRST"
1320IFA=1 A$="LAST"
1330PRINTTAB(0,22)"POSITION CURSOR AT THE ";A$;" LEITER FOR REMOVAL AND PRESS COPY"
1340PROCPC:G=GET
1350IFG=136 HP=HP-1:IFHP<0 HP=0
1360IFG=137 HP=HP+1:IFHP>79 HP=79
1370IFG=138 M1=M1+80:IFM1>16160 M1=16160
1380IFG=139 M1=M1-80:IFM1<10960 M1=10960
1390IFG=138ORG=139PROCEP
1400IFG=135ANDA=0 S=M1+HP:PRINTTAB(0,22)SPC78:A=1:Q=S:GOTO1320
1410IFG=135ANDA=1 T=M1+HP:ENDPROC
1420GOTO1340
1430DEFPROCRID:PRINTTAB(0,22)SPC78,TAB(17,22)"PLEASE WAIT WHILE I TAKE OUT THIS SECTION":S=S-1:REPEAT:S=S+1:T=T+1:?S=?T:UNTILT=M:M=S:M1=(Q DIV80)*80:FORD=M TOT:?D=0:NEXT:PRINTTAB(0,22)SPC78:ENDPROC
1440DEFPROCH:CLS:PRINTTAB(32,1)"f0 TO CLEAR MEMORY",TAB(32,3)"f1 TO OPEN ENTRY MODE",TAB(32,5)"f2 TO CLOSE ENTRY MODE",TAB(32,7)"f3 TO OPEN EDIT MODE",TAB(32,9)"f4 TO CLOSE EDIT MODE"
1450PRINTTAB(32,11)"f5 TO SAVE TEXT",TAB(32,13)"f6 TO LOAD TEXT",TAB(32,15)"f7 TO USE THE PRINTER",TAB(32,17)"f8 TO PREVIEW JUSTIFIED TEXT",TAB(10,19)"TAB INDENTS PARAGRAPHS",TAB(60,19)"ESCAPE TO ABORT"
1455PRINTTAB(8,21)"THE PROGRAM ASSUMES THAT YOUR PRINTER IS CONNECTED AND PROPERLY SET UP"
1460PRINTTAB(5,23)"CHARACTERS USED  ";M-10960;TAB(55,23)"CHARACTERS LEFT   ";5280-(M-10960):ENDPROC
1470X%=&D00:Y%=&D
1480N%=&E00:$X%="TAPE"
1490?&70=&0:?&71=N% DIV 256:?&72=&80:?&73=PAGE DIV 256:?&80=TOP MOD256:?&81=TOP DIV256
1500CALL&FFF7
1510CALL start:?&13=?&13-(PAGE-N%) DIV 256:PAGE=N%
1520RUN
```

Words of explanation

More debugging in SuperBasic from the keyboard of
Simon Goodwin

This week, the SuperBasic listing for installing our two new keywords — *Find* and *How Come*, plus some program notes describing their function and use

The *Find* command works rather like *List*. The difference is that you specify the name of the procedure or function you want to find, rather than the line-number If you like to renumber your programs, or move lines around, the command is vital It is also very useful when you're developing large programs and you can't keep all the crucial line numbers in your head

To use the command, type *Find* "name" The name must be specified as a string The QL's memory is searched at a rate of about 100 names a second, and the procedure or function with that name is listed from its beginning Type *Ctrl-F5* or *Ctrl-Space* to pause or halt the listing.

If you specify a name which does not exist, the routine will find out and print an appropriate message Likewise, if you use a name other than that of a procedure or function, the routine will complain. *Find* searches the QL's internal tables, instead of the stored program, so it is very fast

The second new command, used for debugging, is called *How Come* Run your program as usual It will pass from one procedure to another, until you press Break or an error occurs In either case, type the command *How Come*

The QL will display a list of the procedures or functions which were in use when the program stopped The list also shows the first line of each routine (so that you can list it or check its parameters) and the line number at which the next routine was called If you get desperate, you can put *How Come* commands into your program Whenever one is reached, the QL will show how it got there

How Come is often much more useful than a 'trace' — a list of previous line-numbers — since it shows the points at which decisions were made, and cut the dross of less important lines in-between

There are a few circumstances — usually after a *Clear* — when *Find* and *How Come* may give strange results This is because the QL tables are not fixed in memory they can move around slightly when a program is started from scratch If the routines don't work when first loaded, repeat the command and all will be well

Program Notes

The *Find* routine may look fairly devious, but it is quite simple in design The variable *Name Ptr* is set to point to the start of the 'Name List', which contains the text for each name Line 32050 skips over the first 114 entries in the list which contain the names of Rom routines like Print in *'AH'* or *'JM'* versions of the QL

Names are preceded by a count of the number of characters in the name, so the routine can skip over names with the wrong number of characters (Line 32120) The loop at Line 32140 is only entered if the length of a name in the list matches that supplied by the user It matches the characters supplied with those in memory, one by one If they do not match, the search through the list continues — otherwise the corresponding entry in the Name Table is found (using the number of the entry in the Name List)

Line 32210 checks that the entry is that for a Basic procedure or function Line 32240 extracts the 'value' information — in this case, the first line number of the routine — and Lists accordingly

The *How Come* routine is even simpler It searches another QL table the 'Return stack' which keeps the details of each procedure or function call. Whenever a call occurs, 24 bytes are used to store the details so that the computer can return to the correct place later. Among these details is the line number from which the call was made, and the first line number of the routine called. The routine just extracts this information.

There is one special case. The entry for the last routine entered contains zero for the 'line number of next call', since there is no subsequent routine. In its place *How Come* prints the line number at which the program stopped, extracted from the Basic system variables

Armed with our structured debugging tools, you should have no trouble developing large SuperBasic programs. All you need now is a faster way of loading them

Watch this space!

```
QL SuperBASIC 'structured debugging' procedures.

32000 DEFine PROCedure FIND(n$)
32010 LOCal name_ptr,ch_num,length,pos,type,basic,entry
32020 basic=PEEK_L(163856)+104:REMark Find System vars
32030 pos=-1:name_ptr=basic+PEEK_L(basic+32)
32040 IF VER$="AH" OR VER$="JM" THEN
32050   name_ptr=name_ptr+647:pos=113:REMark Skip ROM words
32060 END IF
32070 REPeat check_name
32080   REPeat check_length
32090     pos=pos+1:length=PEEK(name_ptr)
32100     IF length=0 THEN PRINT #0;n$;" not found":RETurn
32110     IF length=LEN(n$) THEN EXIT check_length
32120     name_ptr=name_ptr+length+1
32130     END REPeat check_length
32140   FOR ch_num=1 TO length
32150   IF CHR$(PEEK(name_ptr+ch_num))==n$(ch_num) THEN
32160     NEXT ch_num:EXIT check_name
32170   END IF
32180   name_ptr=name_ptr+length+1
32190 END REPeat check_name
32200 entry=basic+PEEK_L(basic+24)+pos*8
32210 IF PEEK(entry)<4 OR PEEK(entry)>5 THEN
32220   PRINT #0;n$;" is not a Basic definition":RETurn
32230 ELSE
32240   CLS #2:LIST PEEK_W(entry+4) TO
32250 END IF
32260 END DEFine FIND
32270 :
32280 DEFine PROCedure HOW_COME
32290 REMark Print contents of RETURN table
32300 LOCal rtstart,rtend,i,basic
32310 CLS #2
32320 basic=PEEK_L(163856)+104
32330 rtstart=PEEK_L(basic+56)+basic
32340 rtend=PEEK_L(basic+60)+basic
32350 IF (rtend-rtstart) MOD 24 THEN RETurn
32360 i=rtstart
32370 REPeat scan_rt
32380   i=i+24
32390   IF i>rtend-24 THEN EXIT scan_rt
32400   IF PEEK_W(i+10) THEN
32410     PRINT #2;"Call at ";PEEK_W(i+10);" in ";
32420   ELSE
32430     PRINT #2;"Stop at ";PEEK_W(basic+146);" in ";
32440   END IF
32450   IF PEEK_W(i-12)>0 THEN LIST PEEK_W(i-12)
32460 END REPeat scan_rt
32470 END DEFine HOW_COME
```

In cold storage

A household utility for the Amstrad machines – written by ***Alan Lawless***

Ever since purchasing my Amstrad I have been under pressure to justify the expense and make it do something useful! It has often been the case in our household to find food well past its best down in the darkest corner of the freezer and subsequently have to be thrown away. So it was that I decided to search for a way of monitoring the contents of the freezer and learn how to drive my new acquisition!

The program is menu driven and gives the user the ability to add and delete items, view a list of contents in alphabetical order, and save the information on tape under the file name *"Freezerdat"*. As the user is prompted to enter the date on power up, a facility has been added to warn whether or not any item is past its best or whether anything in the freezer should be eaten within the next "x" weeks.

Program notes

Line No	
600-780	Routine to convert date to an integer number of days elapsed since 1st Jan 1985
180-240	Load data file from tape
320-350	Set up various text windows and pen/paper combinations
360-510	Display master menu
510-570	Enter and select option
840-1010	"Add" routine – note facility to change date
1070-1380	Remove item.
1340-1490	Produce inventory in alphabetical order
1500-1580	Swap subroutine – called during alphabetical sort.
1650-1800	Display any out of date items and give option to see which items will expire shortly.
1840-1940	Save data to tape

Main variables

Item	Array of up to 100 items stored in freezer
Expinum	Associated integer array containing a number equivalent to the expiry date
Count	Tally of number of items in freezer
Daynum	Equivalent number of days elapsed since 1/1/85

```
10      FREEZER MANAGER PROGRAM
20
30          by
40
50      A J LAWLESS
60 '
70 CLEAR
80 SPEED WRITE 1
90 DIM item$(100),expinum(100),mon(12)
100 GOSUB 600
110 MODE 2
120 PRINT "Type  C  to create a new data file"
130 PRINT "or (any key) to load existing data"
140 a$=INKEY$:IF a$="" GOTO 140
150 IF UPPER$(a$)="C" GOTO 320
160 PRINT:PRINT
170 PRINT "Wind tape to start of data file"
180 OPENIN "FREEZERDAT":  open and load data file
190 count=1
200 WHILE EOF=0
210 INPUT #9,item$(count),expinum(count)
220 count=count+1
230 WEND
240 CLOSEIN
250 count=count-1
260 REM now print out contents of freezer
270 FOR x=1 TO count
280 PRINT item$(x);expinum(x)
290 NEXT
300 FOR t=1 TO 4000:NEXT
310 REM Set up text windows
320 WINDOW #1,5,35,19,24:PAPER #1,1:PEN #1,3
330 WINDOW #2,1,40,1,1:PAPER #2,2:PEN #2,3
340 WINDOW #3,1,40,25,25:PAPER #3,2:PEN #3 3
350 WINDOW #4,1,40,2,24:PAPER #4,0:PEN #4 1
360 GOSUB 1650
370 STOP
380 CLS
390 REM   set up screen format and colours
400 PAPER 0:PEN 1:INK 0,10:INK 1,2:BORDER 1
410 DEFINT x,y : x and y made integers for screen positions
420 LOCATE 6,5:PRINT "FREEZER MANAGER - MASTER MENU"
430 x=7:y=9
440 LOCATE x,y:PRINT "Add Item to Freezer.......A"
450 LOCATE x,y+2 PRINT "Remove Item from Freezer R"
460 LOCATE x,y+4:PRINT "Inventory .............I"
470 LOCATE x,y+6:PRINT " Out by ..............O"
480 LOCATE x,y+8:PRINT "Save data to tape.......S"
490 INK 2 3:INK 3,6: set up colours for window 1
500 CLS #1:LOCATE #1,5,3
510 PRINT #1,"Enter Option...";
520 ans$="ARIOS"
530 point=0:WHILE point=0:a$=INKEY$:REM set up pointer to correct routine
540 IF a$<>"" THEN point=INSTR(ans$,UPPER$(a$))
550 WEND
560 PRINT #1,a$:FOR t=1 TO 500:NEXT
570 ON point GOSUB 790,1020,1790,1600,1810
580 GOTO 360
590 RETURN
600 '********************************************************
620
630      Routine to convert date into an integer number of days
640         elapsed since 1st Jan 1985
650 '********************************************************
660 RESTORE 770
670 FOR n=1 TO 12
680 READ mon(n):REM Set up data array for days elapsed
690 NEXT
700 PRINT:PRINT
710 INPUT "Enter date  (dd,mm,yy) : ",dd,mm,yy
720 IF dd<1 OR dd>31 THEN PRINT "Error in date !":GOTO 700
730 IF mm<1 OR mm>12 THEN PRINT "Error in month !":GOTO 700
740 IF yy<85 THEN PRINT "Error in year !":GOTO 700
750 PRINT:PRINT "DATE : ",dd;"-";mm;"-";yy
760 daynum=dd+mon(mm)+(yy-85)*365
770 FOR t=1 TO 1000:NEXT
780 DATA 0,31,59,90,120,151,181,212 243,273,304,334
790 RETURN
800 '********************************************************
810
820      Routine to Add to contents of freezer
830
840 '********************************************************
850 INK 1,0:REM Set up text colour for this option
860 CLS:PRINT
870 FOR t=1 TO 400:NEXT:REM delay to stop extraneous input
880 INPUT "Item to be added. . ";item$(count+1)
890 IF item$(count+1)="" GOTO 870
900 item$(count+1)=LOWER$(item$(count+1))
910 PRINT:INPUT "How no  of weeks to be kept . ",weeks%
920 IF weeks% <= 0 THEN RETURN
930 expinum(count+1)=daynum+weeks%*7
940 count=count+1
950 PRINT:PRINT "Do you wish to add another item ?"
960 PRINT:PRINT:PRINT:PRINT "y = add another item  same date"
970 PRINT "c = add another item but change date"
980 PRINT:PRINT:PRINT "  (Any other key will return to menu)"
990 a$=INKEY$:IF a$="" GOTO 990
1000 IF UPPER$(a$)="C" THEN GOSUB 600
1010 IF UPPER$(a$)="Y" OR UPPER$(a$)="C" GOTO 870
1020 RETURN
1030 '********************************************************
1040
1050      Routine to REMOVE item from freezer
1060
1070 '********************************************************
1080 INK 1,0
1090 CLS
1100 FOR n=1 TO count
1110 PRINT n,item$(n)
1120 NEXT n
1130 PRINT:INPUT "Enter no. of item to be removed: ",no%
1140 IF no%<=0 OR no%>count THEN PRINT "ITEM DOES NOT EXIST !":ELSE GOTO 1190
1150 FOR t=1 TO 1000:NEXT
1160 GOTO 1090
1170 PRINT:PRINT "Are you sure ? ";
```

```
1170 b$=INKEY$:IF b$="" GOTO 1170
1180 IF UPPER$(b$)<>"Y" THEN RETURN
1190 REM Squeeze arrays item$,expiresm to remove record
1200 WHILE n<count
1210 item$(n)=item$(n+1)
1220 expiresm(n)=expiresm(n+1)
1230 n=n+1
1240 WEND
1250 count=count-1:REM Decrease inventory by one
1260 PRINT:PRINT "Done ... remove anything else ? "
1270 a$=INKEY$:IF a$="" GOTO 1270
1280 IF UPPER$(a$)="Y" GOTO 1080 ELSE RETURN
1290 '**************************************************
1300 '
1310 '      Routine to produce INVENTORY in alphabetical order
1320 '
1330 '**************************************************
1340 INK 0,1:INK 1,10:INK 2,6:INK 3,6
1350 CLS:CLS #2:CLS #3:CLS #0
1360 PRINT#2:PRINT #2,"ITEM","No. DAYS LEFT"
1370 ZONE 20:REM set up spacing for print column
1380 n=1
1390 WHILE n<count
1400 IF item$(n) > item$(n+1) THEN GOSUB 1500
1410 n=n+1
1420 WEND
1430 FOR n=1 TO count
1440 PRINT #0,item$(n),expiresm(n)-daynum
1450 NEXT
1460 PRINT #3," Hit any key to Return to main Menu "
1470 IF INKEY$="" GOTO 1470
1480 ZONE 13:REM normal spacing reset
1490 RETURN
1500 REM********** SWAP subroutine **************************
1510 temp$=item$(n)
1520 item$(n)=item$(n+1)
1530 item$(n+1)=temp$
1540 temp=expiresm(n)
1550 expiresm(n)=expiresm(n+1)
1560 expiresm(n+1)=temp
1570 n=0
1580 RETURN
1590 '**************************************************
1600 '
1610 '      Routine to determine which items need to wore up within
1620 '             a given period
1630 '
1640 '**************************************************
1650 CLS
1660 PRINT "Any item listed below should be renewed"
1670 weeks%=0
1680 FOR n=1 TO count
1690 IF expiresm(n) <= daynum+weeks%*7 THEN PRINT item$(n)
1700 NEXT
1710 PRINT:PRINT "Do you wish to see other expiry dates? ";
1720 a$=INKEY$:IF a$="" GOTO 1720
1730 PRINT a$
1740 FOR t=1 TO 1000:NEXT
1750 IF UPPER$(a$) <> "Y" THEN RETURN
1760 PRINT:INPUT "Enter no. of weeks to look ahead";weeks%
1770 PRINT:PRINT "The following items will be out of date "
1780 PRINT:PRINT "          in ";weeks%;"weeks"
1790 FOR t=1 TO 1000:NEXT
1800 GOTO 1680
1810 '**************************************************
1820 '
1830 '      Routine to save data to tape
1840 '
1850 '**************************************************
1860 CLS
1870 SPEED WRITE 1
1880 OPENOUT "!rozerdat"
1890 FOR n=1 TO count
1900 PRINT #9,item$(n):PRINT #9,expiresm(n)
1910 NEXT
1920 CLOSEOUT
1930 RETURN
1940 END
```



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Arcade Avenue

First foray

Now then, today's a big day for the column since we are taking our first foray into 16 bit hacking (who says we don't move with the times) Here it is, the premiere 68000 cheat routine from Allan Jarvis of Benfleet. "I have been a fan of your page for some time now, but have been unable to contribute since I own a QL. At last the first arcade game arrived – *EVA* from Westway – it is not only the first, it is of reasonable quality, smooth graphics, etc, and as your reviewer said is really great fun. But it's also difficult – I only managed to get to screen 5 (of 26) with a score of 4578. Because I wanted to see the rest of the screens I wrote this routine

```
10 a = Respr(59000)
20 Lbytes mdvl_evamain,a
30 Poke W a+412,20081
40 Sbytes mdvol_evamain,a,59000
```

"Run this, and then whenever the game is loaded you will have endless lives. To get five lives back replace line 30 with *Poke_ a+412,21264* and run it again. Even with the lives poke I found the last three screen extremely difficult. Screen 26 took me almost an hour to complete – as soon as you move the aliens close in with frightening speed. Screen 1 restarts with no speed increase but it will be a long time before anyone gets there with just five lives. I will continue to hack *EVA* until Sinclair releases *QL Caverns*."

Look forward to hearing more from you, Allan.

To stick with new machines for the column – for the C16 version of *Xargon Wars* from Ian Caldwell. Before running program type *Poke 7302,201* for 200 lives.

The biggest bunch of new pokes that arrived on my desk today is for the MSX machines. From Simon Dobson of Norrabridge for Alligata's *Blagger*, type 1,2,3 then press the space bar and cursor up to put yourself in cheat mode. Press cursor right to see levels and space bar to play from the chosen level.

From Richard Marsden of Wakefield for MSX *Manic Miner* – "Load first part of tape using load *"MANIC"* instead of load *"MANIC" R* (don't forget to stop tape when first part is loaded). Type *List Edit* line eight to *Bload "MINER"* instead of *Bload "MINER R*. Type this in and *Run* it – then restart the tape

```
10 Poke 38211,0 . Poke 39212,0 Poke 39213,0
20 Poke 51836 8
30 Def Usr = 38165 A = Usr(0)
```

Line 20 gives you infinite lives and room select – if you *Poke 4*, you get room select only, if you *Poke 2*, you get infinite lives only. Room select is obtained by pressing a combination of keys one to five, then pressing zero to select the room (when the game is running!)

Blagger from Alligata

Automatic load

From J M Lyndon-Smith of Johannesburg – "To make Willy invulnerable against all moving objects in *Manic Miner* type – *Load "CAS "*

```
8 Bload "CAS ".Poke &H8D81,0 Defusr0= &H86FD
  2= Usr0(0)
Run
```

To get 255 lives on Blagger

```
10 Bload "CAS ',r  Bload "CAS "
Defusr0= &H9254,255
z= Usr0(0)
Run
```

To get 255 lives on Time Bandits.

```
10 Screen1  Colour 15,1,1
Cls  Defusr0= &H8C00
20 Print "Loading . " Bload "TIMEM2"
30 Poke &H8F01 255
Z$ = Usr0(0)
40 Goto 30
Run
```

Vacummania

```
10 Screen1  Colour 11,1,1
Cls  Defusr0= &HCA00
20 Bload "VACMC"
30 Poke &HCA51,255  Poke &HCA4E,X
40 Z = Usr0(0)
Goto 40
```

Then *Run* it. 255 is the number of lives, X = speed of Wooms (3 is fastest, 12 slowest)

Hunchback

```
10 Bload "CAS '  Poke &HD830,224
Defusr0= &HD77A
20 For I = 0 to 7  Read A$  Poke &HE000 + I, Val ("&H + A$)  Next
30 Z = Usr0(0)
40 Data 3E 00, 32 A8, A3 C3, 00 88  Then Run.
```

"All of these routines automatically load and alter the machine code program before running it. I am working on a number of games besides these, including Jetset *Willy* (shudder!) and will send you the pokes when I have found them. I haven't seen any MSX pokes before in your mag. I am not being biased when I say that the MSX are very powerful machines and deserve to be popular – after all I have an Amstrad as well.

Please could you ask any MSX owners to contact me, so that we could exchange information etc."

Well, I hope a lot of people will take *'JM'* up on that since he/she seems to be a mine of useful tips – write to this address 49 Garden Road, Orchards, 2192, Johannesburg, South Africa.

Useful tips

Now on to some more familiar machines. Roy Palmer of Hatfield has sent in this tip for Spy Hunter "When the helicopter comes, remain at the bottom of the screen. If you do not move the bombs explode above you and you gain 150 points. In that way over a few hours I scored over 1,250,000 points". Nice one Roy.

Steven Liles of Barnsley has a confession to make. "My tip for the game *Perils of Willy* on the Vic 20 has errors in it. The correct routine is this. Load the game as normal and press *Control/Q* and *Restore*. For infinite lives *Poke 11373,200*. To prevent characters disappearing you must type *Poke 11360,234 Poke 11365,234*. To start on any screen *Poke 11378,x (x= 0 to 31)*. To restart the game *Sys 12269*.

To finish this week here is a letter from Barry Blitz (sic) of 35 Villa Road, London SW9 7ND who writes. "For the first time in my live I have actually finished a Spectrum game and very satisfying it was too. *Starion* proved to be not only a superbly smooth arcade game but educational too, although some of the anagram solutions turned out be rather obscure words.

"Anyway congratulations to David Webb the author. More please! I would be glad to provide help with this program to anyone who needs it, I certainly did."

Tony Bridge's Adventure Corner



Show products

The prize of 25,000 portraits of the Queen offered for solving *Eureka!* has been won! Matthew Woodley, a part-time schoolboy, full-time *Eureka!* – solver from Hampton is the dogged soul who kept on at the game until he found that magic phone number. Congratulations, Matthew, and commiserations to the other 100,000 *Eureka!* players who couldn't find the number.

Pleas for help in this adventure have been a regular feature of my mailbag over the past few months, and I have been rather reluctant to give away too much, for obvious reasons. But now I will be able to give more attention to these problems.

You will remember that I discussed *Bored of The Rings* some weeks ago, an adventure from one of my favourite outfits, Delta 4. I hear rumbles, though not officially from Melbourne House, that the first part of the epic *Lord of The Rings* is currently nearing completion. Delta 4 have produced this lovely romp through Middle Earth as a stopgap which may even find more fans that the original.

The marketing has now been taken over by Silversoft, and the re-vamped program should be available now for the Spectrum, BBC and QL. A version for the Amstrad is being prepared, using Silversoft's own adventure-writing facility, *Genesis*. This should prove to be the equal of *The Quill*, and in fact offers even more facilities, including sound.

Mention of *The Quill* brings me to the third item of news for this week – the imminent release of *The Quill* part three. My moles tell me, and again I should say that this is completely unofficial, that added features will include split-screen text and graphics as well as other enhancements.

The *Personal Computer World* exhibition in London's Olympia last week had several interesting new products. Most of them, of course, will be 'ready at the end of September', according to people on the stands, which probably means the beginning of December. The Level 9 stand was running a demo of *The Diary of Adrian Mole*. Pete Austin tells me that the clue sheet for *Red Moon* will be ready very soon – it has been delayed for a worthy cause, the completion of *Adrian Mole*, another Level 9 collaboration with Mosaic Publishing.

The demo was running at *PCW*, and was the mix of superb text and graphics that we have come to expect from one of Britain's premier adventure houses. The game is in the final stage of production, and I'll report on it when I see the final version. Their next release will be *The Worm in Paradise*, the last of the Silicon Dream trilogy, and this should be with us 'before Christmas', as they say.

Talent Software of Scotland, known to us adventurers for *West* and *Zkul* on the Commodore and QL, were showing a very verbose version of *Colossal Cave* on the Atari 520ST. This was all-text (as far as I could see – when is someone going to do a graphic version of the old classic?), and was just one of a rapidly-growing number of titles for this new micro, including a *Manic Miner* – like platform extravaganza.

A new title

A very impressive new title was *Brataccas*; the title's impressive, and so is the game, which is rumoured to be the final apotheosis of Imagine's *Bandersnatch*. It's good to see those familiar names in the 80-page booklet – Dave Lawson, Eugene Evans ... ah, nostalgia. Adventure International was showing *Robin of Sherwood*, and Novogen, authors of *Encounter!* were running their latest game, *Mercenary*, a fantastic blend of arcade shoot 'em up, strategy role-playing and adventure.

Well, now, that's the news for this week – let's have a quick look at a new arcade-adventure which was generating a lot of interest at the *PCW* Show. The Edge, as the arcade players will know, is the company formed to inject a bit of life into Softek. Now along comes *That's the Spirit*, billed as a 'graphics adventure with text-adventure-like play, but without the text!'

What this means is that you plug in your joystick and move your little character around the screen, avoiding the usual nasties and meanies. Along the way, many objects can be picked up and used with varying degrees of success.

You'll have read all about this game I'm sure in *The Zappers and Mappers Monthly*, and can probably tell me exactly how to do it all in 234 moves and eight minutes, but for the more sedate amongst us, let me describe it. The upper half of the screen is the playing area, and shows your little woman walking back and forth in front of a backdrop of New York. The authors, Simon Lipowicz and Andy Blasdell, seem to know their way around Metropolis, judging by the in-jokes scattered around.

Information area

Beneath the playing area is the information area. Here you'll be given details of your strength (or sanity!) and various other life supporting details as well as a pictorial list of the objects you are carrying. Moving a box cursor over each object allows you to manipulate that object – thus dropping or examining it, or connecting it to another object.

True to the tradition of today's arcade programs, the documentation is pretty obscure and an adventure in itself. Finding the combination of objects and connecting them in the right order, which entails much taking and dropping, seems to be the way to success.

The blurb on the box says 'Completion time months even for an experienced player', and I can well believe it, with so many combinations to be tried. A clue here: one of the first problems is getting rid of the dog. There is a bone lying around just a little way from the brute, which cannot be passed until dealt with (and your sanity will drop to a dangerous, nay, fatal level if your persist in trying to pass it!). Pick up the bone and go to the right-hand post of the subway entrance. Making sure that you accurately aligned here, *Throw* the bone at the dog. This should give you a feel for the rest of the adventure – a a mixture of acquiring and using objects in the right order, and arcade skills.

A keyboard overlay is supplied, although it's more of a 'lay over the top of the Spectrum', and this will give you few ideas for commands – try *Swear* for instance. The resulting catastrophe is not original (did it appear in a Softek game, methinks?), but it still sends a shiver down the aged spine!

I like *Spirit* – but I think the program looks a little more like a £4 or £5 game, at which price it would have no competition.

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The 1st Crewe Computer Swap	October 6 10.00am-4.00pm	Oakley Centre Crewe	50p adults 10p children	
Commodore Horizons Show	October 26-27 10.30am-6.00pm	Tech West Centre Warple Way London W12 (bus service from Tavern)	£2.00 adults £1.00 children (in advance)	Computer Marketplace 01-348 6866

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Commodore 64

1	(2)	Sky Fox	(Ariolasoft)	£9.95
2	(1)	Summer Games II	(Epyx/US Gold)	£9.95
3	(4)	Way of the Exploding Fist	(Melbourne House)	£9.95
4	(3)	Beach Head II	(Access/US Gold)	£9.95
5	(-)	Karateka	(Ariolasoft)	£9.95
6	(-)	New Games	(Virgin)	£9.95
7	(-)	Barry McGuigan's World Championship Boxing	(Activision)	£9.95
8	(5)	Frankie goes to Hollywood	(Ocean)	£9.95
9	(8)	Action Biker	(Mastertronic)	£1.99
10	(9)	Elite	(Firebird/Acornsoft)	£14.95

Spectrum

1	(1)	Way Of The Exploding Fist	(Melbourne House)	£8.95
2	(2)	Nightshade	(Ultimate)	£9.95
3	(6)	Frank Bruno's Boxing	(Elite)	£6.95
4	(8)	New Games	(Virgin)	£9.95
5	(3)	Hypersports	(Imagine)	£7.95
6	(9)	Highway Encounter	(Vortex)	£7.95
7	(4)	Frankie goes to Hollywood	(Ocean)	£9.95
8	(-)	Southern Belle	(Hewson Consultants)	£7.95
9	(-)	Bmx Bikes	(Mastertronic)	£1.99
10	(19)	Dambusters	(Sydney/US Gold)	£9.95

All figures compiled by Gallup/Leisurescope

Top Twenty

1	(1)	Way of the Exploding Fist *(Spectrum/64)*	Melbourne House
2	(3)	Sky Fox *(C64)*	Ariolasoft
3	(2)	Summer Games II *(C64)*	Epyx/US Gold
4	(9)	New Games *(Spectrum/C64)*	Virgin
5	(4)	Nightshade *(Spectrum)*	Ultimate
6	(7)	Hypersports *(Spectrum/C64)*	Imagine
7	(6)	Frankie Goes to Hollywood *(Spectrum/C64)*	Ocean
8	(5)	Frank Bruno's Boxing *(Spectrum)*	Elite
9	(10)	Action Biker *(Spectrum/C64)*	Mastertronic
10	(11)	Finders Keepers *(Spectrum/C64/Amstrad/MSX)*	Mastertronic
11	(8)	Beach-head II *(C64)*	Access/US Gold
12	(17)	Formula 1 Simulator *(Spectrum/C64/C16)*	Mastertronic
13	(16)	Beach-head *(Spectrum/C64/BBC/Amstrad/Atari)*	Access/US Gold
14	(-)	Karateka *(C64)*	Broderbund/Ariolasoft
15	(19)	BMX Racers *(Spectrum/C64/C16)*	Mastertronic
16	(-)	Barry McGuigan's World Championship Boxing *(C64)*	Activision
17	(18)	Highway Encounter *(Spectrum)*	Vortex
18	(13)	Dambusters *(Spectrum/C64)*	Sydney/US Gold
19	(12)	Elite *(C64/BBC/Electron)*	Firebird/Acornsoft
20	(15)	Red Moon *(Spectrum/C64/BBC/Electron/Amstrad)*	Level 9

Figures compiled by Gallup/Leisurescope

Readers' Chart No 42

1	(3)	Way of the Exploding Fist (Spectrum/C64/Amstrad)	Melbourne House
2	(1)	Hypersports (Spectrum/C64)	Imagine
3	(5)	Elite (C64/BBC/Electron)	Firebird/Acornsoft
4	(6)	Frank Bruno's Boxing (Spectrum)	Elite
5	(9)	Shadowfire (Spectrum/64)	Beyond
6	(10)	Summer Games II (C64)	Epyx/US Gold
7	(-)	Frankie Goes To Hollywood (Spectrum/64)	Ocean
8	(3)	Dun Darach (Spectrum/Amstrad)	Gargoyle
9	(7)	Spy vs Spy (Spectrum/C64)	Beyond
10	(8)	Red Moon (Spectrum/C64/BBC/Electron/Amstrad)	Level 9

Winning phrase No 42. "Petty sentry said 'There who goes'" from Terry Flood of London SE3 who wins £25. Runners up include "Hewson goes off the rails" from S Robertson of Moss End, Lanarkshire and "Why is life so perplexing today, pet?" from A Cunningham of Aberdeen.

Now voting on week 44 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart, published above

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly* 12-13 Little Newport Street, London WC2H 7PP

Voting for Week 44 closes at 2pm on Wednesday September 25 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed

Name .... **My top 3: Voting Week 44**

Address .... 1..

.... 2..

.... 3..

My phrase is: ....

New Releases

TIME WARP

Starion was, I think, an *Elite* surrogate When, for the first time in their lives, Spectrum owners were actually jealous of BBC owners over the mighty game, *Starion* provided a sort of mini *Elite* to keep them going Now it has been faithfully converted to the Amstrad

Starion is a curious mixture of good vector graphics, space shoot 'em up with radar, battle computers All that and a puzzle game

When you blow up the nasty baddies a letter is revealed floating through space — collect all the letters in a given segment and you have an anagram referring to a specific time zone, work out the correct one and warp into it

I always found the zap/anagram a somewhat uneasy mix But, whatever else, *Starion* is the best space game currently available for the Spectrum (but soon, oh soon *Elite!*) and now the same is true of the Amstrad

Program *Starion*
Price *£8.95*
Micro *Amstrad*
Supplier *Melbourne House*
Castle Yard House
Castle Yard
Richmond
TW10 6TF

ROUND ONE

Latest from Activision for the Commodore 64 is *Barry McGuigan World Championship Boxing* It's a late contender for the boxing game crown but in terms of playability it scores well

It's more than just the actual slugging it out in the ring, you choose your boxer from a range of temperamental, and even racial types, then develop him still further on a training circuit – you allot how long to spend on various kinds of training, judging your boxer's weakest points and pit him against an opponent who best matches his strengths and weaknesses

All the boxing moves are controlled by joystick using combinations of direction and direction with joystick pressed down movements It's similar to *Way of Exploding Fist* in the amount of complexity that it can accommodate The game is easy to get into, there are plenty of chances to redeem a bad start. The animation is extremely good, again a comparison with *Way* is appropriate in that the actions move smoothly from one to the other

I like the game very much, it gets my vote as the best boxing game of the lot. Watch for the cameras!

Program *Barry McGuigan World Championship Boxing*
Price *£8 99*
Micro *Commodore 64*
Supplier *Activision*
15 Harley House
Marylebone Road
London NW1 5HE

COLOURFUL

Design Design have been quietly knocking out minor hits for some years now – remember *Invasion of the Bodysnachers*, *Dark Star* and *Hall of the Things?* Wall, here is their latest offering *On the Run*, for the Amstrad CPC464 and Spectrum

The scenario is fairly standard stuff – you (wearing an off-the-shoulder protective suit, plus jet pack and laser) must rescue six flasks of dangerous chemicals, from a maze area which has suffered an unfortunate accident involving nerve gases and the like This explains all the weird looking plants and animals, I suppose, a bit like a mutated *Sabre Wulf* almost

The game plays well, with your besuited persona blasting away the nasties – lots of big colourful sprites on the Amstrad version – contact with whom drains your limited energy, which can be replenished by picking up various objects, etc, etc, etc

All very competently done, as you would expect, and although Amstrad owners will welcome this with open arms, those with Spectrums may have seen this all before. But there again, they've got the Design Design autumn biggie provisionally entitled *2112* to look forward to Lucky them.




This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
On the Run	Arc	Amstrad	£7 95	Design Design
Sorcery +	Arc	Amstrad	£13 95	Amsoft
Tell the Time	Ed	Amstrad	£5 95	Duckworth
Henry's House 1	Arc	Atari ST	£6 95	English
Henry's House 2	Arc	Atari	£6.95	English
Blue Max 2000	Arc	Commodore 64	£6.95	Us Gold
Castles of Dr Creep	Arc	Commodore 64	£6 95	Ariolasoft
Paradroids	Arc	Commodore 64	£7 95	Hewson
Schizophrenia	Arc	Commodore 64	£7 95	Quicksilva
Super Zaxxon	Arc	Commodore 64	£9 95	US Gold
The Goonies	Arc	Commodore 64	£9 95	US Gold
Topper the Copper	Arc	Commodore 64	£9 95	English
Beach-head	Arc	Electron	£9.95	US Gold
Competitive Maths	Ed	Electron	£5 95	Duckworth
QL Hyperdrive	Arc	QL	£14.95	English
QL C Development	Ut	QL	£99 95	Metacomco
Knight Games 1	Arc	Spectrum	£3.50	Black Knight
On the Run	Arc	Spectrum	£7 95	Design Design
Highway Code	Ed	Spectrum	£5.95	Duckworth
Seventh Cavalry	S	Spectrum	£3.50	Black Knight

Key: Ad – adventure
Arc – arcade
Ed – education
S – strategy-simulation
Ut – Utility

New Releases

Pick of the week

EXTRA SCREENS

There's gold in them there hills . . . err . . hold on a bit. Are there any hills in Brentwood? Oh well, never mind – suffice to say the Amsoft Gold range has been released on the waiting world – in this case *Sorcery +*, an enhanced disc version of the smash hit Virgin game of almost the same name

So what do you get for your £13 95? First of all, you get the same fab colourful graphics and ultra smooth scrolling found on the original Amstrad version.

However, you also get a total of 39 extra screens, seven tacked onto the original game They've moved the easiest Sorcerer from the Chateau to heaven knows where and created a whole new second section consisting of a further 28 new screens

Now, after defeating the Necromancer in Chapter One by freeing your fellow captive Sorcerers, you go on to confront him in his hideout to try and surround him with hearts. Programmer Steve Chapman reveals there are four to find, three being quite easy – the fourth, "nigh on 99% impossible". You're not going to take that challenge lying down, are you?

Program *Sorcery +*
Price *£13 95 (disc)*
Micro *CPC 464, 664, 6128*
Supplier *Amsoft*
169 Kings Road
Brentwood
Essex CM14 4EF

Program *On the Run*
Price *£7 95*
Micro *CPC 464/Spectrum*
Supplier *Design Design*
125 Smedley Road
Cheetham Hill
Manchester

EFFECTIVE

Stealth is another of Ariolasoft's recent releases and whilst there isn't anything terribly amazing about it, it's the best of the Buck Rogers style zap-em-ups

Plotwise there isn't a lot to the game, blast your way to a distant black tower There is a wide selection of baddies including spinning red blobs, bouncing yellow things and enemy planes Occasionally, spinning yellow blobs appear which, once passed through, give you energy

As you approach the tower, it grows smoothly in size and generally 3D effects are well done – the approach of objects is achieved using the sprite update style and it's slick and effective

Really my only complaint is the tiredness of the plot If that doesn't bother you, you'll like *Stealth*

Program *Stealth*
Price *£9 95*
Micro *Commodore 64*
Supplier *Ariolasoft*
Suite 105/106
Asphalte House
Palace Street
London SW1E 5HS

STAR MAPS

Astrolab is one of many astronomy programs around for the Spectrum, but it is almost certainly the most useful to the amateur astronomer

The simple objective of the program is to enable you to discover exactly what features will be on view in your locality on any particular night

The program has detailed star maps for locations in North America and Europe, these are updated every 45 seconds synced to the Spectrum's external clock This will mean that the computer display will change and develop as the sky does, helping you to spot particular features

The program is the slickest from Eclipse Software yet, gone are input statements, instead options are selected through a one key press menu system Other options in the program allow you to scan particular sections of sky or use a bright star as a guide A short manual gives background information on using the program, but there really isn't anything too difficult about using the program.

For astonomers and the idly curious an excellent (and cheap) purchase

Program *Astrolab*
Price *£6 95*
Micro *Spectrum*
Supplier *Eclipse Software*
9 Ardrossan Gdns
Worcester Park
Surrey KT4 7AX

This Week

Amsoft, Brentwood House 169 Kings Road Brentwood Essex 0277-230222 **Ariolasoft,** Retail **Black Knight,** 80 Slades Drive Chislehurst, Kent BR7 6JX 01-467 7451 **Design Design,** 125 Smedley Road Manchester M8 7RS 061-205 6603 **Duckworth,** The Old Piano Factory 43 Gloucester Crescent, London NW1 7DY **English,** Box 43 Manchester M60 3AD 061-835 1358 **Hewson,** 7 Grahame Close Blewbury Oxon OX11 9QE 0235-832939 **Metacomco,** Metacomco 26 Portland Square, Bristol BS2 8RZ 0272-428781 **Quicksilva,** Palmerston Park House 13 Palmerston Road Southampton Hampshire SO1 1LL **US Gold,** US Gold Unit 10 The Parkway Ind Centre, Heneage Street Birmingham B7 4LY

Duck soup

I sometimes wonder whether we pay enough attention to the earliest pioneers of robotics

Take Jacques de Vaucanson, for example in 1738 he presented his mechanical Automaton Duck to the people of France, and eventually to the French Royal Academy of Sciences

"In this duck," Vaucanson announced, "will be noticed the mechanism of the viscera, intended to perform the functions of eating, drinking and digesting The bird puts out its head to take up the seed, swallows it, digests it, and evacuates it through the usual channels.

The automaton could quack, flap its wings and do most things a duck likes doing, but it seems to have been the remarkable simulation of digestion and excretion that caught the public imagination. You can see why

Alan Turing the mathematician, produced a paper in 1937 *Computable Numbers*, which demonstrated that since mathematics can be understood as the manipulation of strings of symbols, it should be possible to perform any valid mathematical operation mechanically Not only that, but a *universal* machine could be possible, that could undertake the work of any other symbol-shifting machine In so doing he laid the theoretical foundations for the development of computers.

In 1951 (after war years spent in the hacker s paradise at Bletchley Park, breaking the German Enigma ciphers) he published a paper *Computing Machinery and Intelligence* here he tried to define what meaning if any could lie in the phrase "intelligent machine"

Clearly this could not be "a machine that is like a human in every respect" – a machine could not be expected to think from visceral experience and sensations in the way that a human does On the other hand, Turing recognised that machine intelligence must mean more than competence within the narrow and tightly-defined rules of say mathematics or chess

So Turing always a puzzle enthusiast, adapted another game at once simpler yet infinitely more wide-ranging than chess.

In the *Imitation Game*, a male (A) and a female (B) are both in a different room from the questioner (C) who communicates with them by means of typed notes or telex and so has no visual clues as to which is which. B tries to convince him that she is the male A tries to set him right and C attempts to sort out the jumble of information and misinformation that comes in response to his questions As a party-game that is quite jolly, especially when the questions start getting rude

But could a computer play it? Could it play well enough to convince C that it was human? Since any and every kind of question could be asked, the machine would need extremely sophisticated language analysis capabilities

Turing wrote, "I believe that in about 50 years' time it will be possible to program computers with a storage capacity of 10^9, to make them play the imitation game so well that an average interrogator will not have more than 70 per cent chance of making the right indentification after five minutes "

Passing the Turing test is a dream that lures many an AI researcher onward

I can t help feeling a little unhappy at a test that cares only for the output and doesn't worry about how it s produced Because, you see of that Automaton Duck. The authentic-seeming output that so impressed the finest minds in 18th-century France was a cheat After Vaucanson's death, the mechanism was examined. The duck had no digestive system, no gastric juices, no stomach, no intestines Seed picked up by the beak slid down into a small container After a suitable period, a clockwork mechanism extruded breadcrumbs dyed green from the other end.

So the duck really belonged more to the art of faking than to the science of precise simulation. Which is why, whenever I hear of programmers working away at imitating the output of human beings I can't help wondering whether the result won't just be a load of green breadcrumbs.

George Simmers

Coincidence

Puzzle No 175

"Think of a number between 1,000 and 9,999,' asked my nephew Jamie the other day 'Now multiply by three and then add three ' I did as he requested.

Now, he continued, 'take that total and again multiply by three and add three

He then asked me for my result and was able to determine the number that I had originally thought of By a curious coincidence, this final number that I had arrived at contained just one digit, although repeated a number of times

Given this information, you should be able to calculate what number I had first chosen.

Solution to Puzzle No 170

In each case there is only one possible answer Offenbach 562, Rossini 152 Scarlatti 748 Schumann 869 and Sullivan 313

```
10 INPUT"NAME";A$
20 CLS:PRINT A$
30 LET L=LEN(A$)
40 LET F=10↑(L-1):F=F↑(1/3):F=INT(F)+1
50 LET G=10↑L-1:G=G↑(1/3):G=INT(G)
60 FOR N=F TO G
70 LET C=N*N*N
80 LET C$=STR$(C)
90 FOR A=1 TO L-1
100 FOR B=A+1 TO L
110 IF MID$(A$,A,1)<>MID$(A$,B,1)AND MID$(C$,
    A,1)=MID$(C$,B,1)THEN GOTO 160
120 IF MID$(A$,A,1)=MID$(A$,B,1)AND MID$(C$,A,
    1)<>MID$(C$,B,1)THEN GOTO 160
130 NEXT B
140 NEXT A
150 PRINT N C
160 NEXT N
170 GOTO 10
```

The problem involves finding cubes of numbers in which like and unlike digits correspond to like and unlike letters

The program tests any name that is input Lines 40 and 50 determining the lowest and highest whole number whose cubes have the same number of digits in turn by comparing both the numbers and the names for like and unlike letters and digits.

Winner of Puzzle 170

The winner is David S Leatham of Higher Heysham, Morecombe Lancs, who receives £10

Rules

The closing date of Puzzle No 175 is October 16.

The Hackers



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